WEST MARKETING ISSUE
Pages 9-16

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Agricultural Potash Deliveries Decrease During Fiscal Year

American Potash Institute Report Shows Drop of Over 5%

— See Table on Page 21 —

WASHINGTON—Deliveries of potash for agricultural purposes in the United States, Canada, Cuba, Puerto Rico, and Hawaii by the eight American potash producers and importers totaled 3,392,569 tons of salts containing an equivalent of 1,978,636 tons K_2O during the fertilizer year of July, 1957 through June, 1958, according to the American Potash Institute. This was a decrease of over 5% in salts and K_2O under the preceding fertilizer year.

Continental United States took 1,838,292 tons K_2O, Canada, 86,516 tons, Cuba, 14,364 tons, Puerto Rico, 18,708 tons, and Hawaii, 20,756 tons K_2O. These figures include imports of 235,141 tons K_2O for this period, an increase of 15%. Exports to other countries were 185,182 tons K_2O, a decrease of nearly 21%. Deliveries of potash for non-agricultural purposes amounted to 119,260 tons K_2O, a decrease of 3%.

Total deliveries for all purposes were 3,898,978 tons of salts containing an equivalent of 2,283,078 tons K_2O, a decrease of 7% in salts and K_2O under the last year.

Illinois with 192,724 tons K_2O was the leading state for deliveries followed in order by Indiana, Ohio, Georgia, Florida, and Virginia. Deliveries do not necessarily correspond to consumption in a given state.

Muriate of potash was the prin-

(Turn to POTASH DELIVERIES, page 21)

USDA Announces New Working Group To Study Weevils

WASHINGTON—The U.S. Department of Agriculture has announced that a special working group, representing the cotton industry, southern state experiment stations and USDA, is considering the needs of a comprehensive research program to find better means of controlling the boll weevil, most costly insect pest of the nation's cotton crop.

The three-man group, appointed by the secretary of agriculture, has completed preliminary plans for an intensive study of boll-weevil research. The study is to begin immediately and will require about four months to complete.

Representing the cotton industry on the group is Dr. H. G. Johnston of the National Cotton Council of America, Memphis. Dr. Edward R. McGovran of USDA's State Experiment Stations Division was named to represent the agricultural experiment stations of the southern states, on the recommendation of the directors of these stations.

(Turn to WEEVIL STUDY, page 21)

Favorable Climate for Sales Seen in Look at Farm Income Report

By JOHN CIPPERLY, Croplife Washington Correspondent

WASHINGTON—The U.S. Department of Agriculture Farm Income Situation Report for September continues to show a greatly improved rate of farm income for the first eight months of this year, as compared with the same period a year ago.

It adds up to a most favorable backdrop for promotion of fall fertilizer sales, if prosperous farming activity can be used as a bench mark of the willingness of the farmer to spend money for another year of favorable field crops.

In this report USDA notes that farm operating costs this year have been running higher than those in 1957. Nevertheless, there has been a higher level of realized gross income which appears to justify the venture of further capital inputs into farm production next year despite the probable onset of lower levels of price support for such major crops as cotton and corn.

As previously reported in Croplife, USDA officials contemplate a reduction in over-all field crop output next year—or at worst the maintenance of field crop production for feed grains at about the same level that exists this year, despite a probable increase in national corn acreage next year under a prospective lowered level of price support for that crop.

In the case of cotton, prominent trade officials believe that if water level conditions are good in the irrigated cotton territory and moisture conditions are good in the Southwest late next winter that cotton acreage generally will result in a total expansion to about 18.25 million acres for that crop in 1959.

USDA officials argue that lowered levels of price support will tend to check maximum use of acreage since capital input will be discouraged due to the lower level of government supports.

This is the theory which fer-

(Turn to FARM INCOME, page 17)

Management Group Says:

Fertilizer and Farm Chemical Utilization Important to Develop Timber Resources

— See Photo on Page 21 —

PACK FOREST, WASH.—"Proper use of our timber resources requires utilization of all the good management practices presently known, in addition to developing many new methods in the future," George Schroeder, Crown Zellerbach Co., said at a recent forest management school here.

"Naturally, proper use of fertilizer and farm chemicals will play an important role in the future, if the economics prove feasible," he said.

Mr. Schroeder participated in a special school on forestry management sponsored by the University of Washington and the National Plant Food Institute. Some 50 representatives of the forestry and fertilizer industries attended.

F. Todd Tremblay, Pacific Northwest regional director for the Institute, opened the school and pointed out that the Pack Forest session would be the first in a series of an-

(Turn to FORESTRY MEETING, page 21)

Western Phosphates To Expand Plant In Garfield, Utah

SALT LAKE CITY—A half-million dollar expansion of its Garfield, Utah plant is being planned by Western Phosphates, Inc. The expansion would boost total volume of phosphate rock by about 10%.

The expansion program was announced by John Stauffer, vice president of Stauffer Chemical Co., which is the parent organization of Western Phosphates. Singled out for the project are the plant's production facilities of phosphate and ammonia fertilizers.

Phosphate rock is shipped to the plant for processing from mines in Utah, Wyoming and Idaho.

Mr. Stauffer also announced that a decision will be made within a year on exercising an option on phosphate deposits near Vernal in eastern Utah.

Garfield Chemical and Manufacturing Co., an affiliate of American Smelting and Refining Co., and Kennecott Copper Co. also own a portion of Western Phosphates.

Farmers Increase Nutrient Application on Oats Acreage

By J. R. Adams, L. B. Nelson and D. B. Ibach

Drs. Adams and Nelson are with the Soil and Water Conservation Research Division, and Mr. Ibach with the Farm Economics Research Division, Agricultural Research Service
U.S. Department of Agriculture
Beltsville, Md.

Part VI—Oats

AN ESTIMATED 31% of approximately 37 million acres of oats harvested during 1954 received fertilizer. Average nutrient application was estimated at 15 lb. N, 31 lb. P_2O_5, and 24 lb. K_2O per fertilized acre. Comparing the 1954 estimates with those for 1950 (2, p. 126) showed no change in percent of the oat acreage fertilizer but an appreciable increase in the rates of nutrient application. The 1950 rate estimates were 9 lb. N, 26 lb. P_2O_5, and 12 lb. K_2O per fertilized acre.

Data by individual states showing the total acres harvested, percent of harvested acreage fertilized, tons of fertilizer applied, and rate of nutrient application per fertilized acre are given in Table 1. The pattern of the percentage of harvested acreage fer-

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Pathologists Say Root Systems Important To Corn Growth in Low Moisture Areas

BROOKINGS, S.D.—Plant pathologists at South Dakota State College here feel that bigger, healthier root systems could definitely help farmers located in lower moisture areas produce a dependable corn crop.

During the agronomy field day tours held here, C. M. Nagle, head of plant pathology, hinted that if diseases such as root rot could be eliminated the corn producing area could be expanded considerably. He noted that work here on breeding of varieties resistant to root rot, which is one of the most damaging diseases of corn roots, is quite encouraging. He explained that root systems unharmed by root rot could take fuller advantage of smaller moisture supplies and give them a particular advantage in areas where moisture is sometimes short.

The lack of rainfall here during the growing season could almost be considered an advantage for the field day program, the pathologists felt. Generally adapted crop varieties reflected their ability to stand up when moisture is short—a condition which exists in parts of the Upper Midwest area almost every year.

Fertility demonstrations conducted by Leo Puhr, agronomist, reflected a better crop response to phosphorus applications this year than when moisture is plentiful.

The importance of moisture conservation in dry years was reflected in corn-wheat-sweet clover rotations. While no yields have been recorded as yet, plots where the legume was plowed down in June to conserve moisture appeared to be doing much better than plots that had received identical treatments but were plowed down later in the season.

Mr. Puhr also demonstrated the importance of leaving the straw on the field. Wheat yields averaged 17.7 bu. per acre when the crop residues were removed the previous year and 20.6 bu. per acre on areas where the straw had been turned under. Responses in oats were still better. Without residues oats yielded 45 bu. per acre but with them, they jumped to 57 bu. Mr. Puhr explained that there is about 20 lb. of nitrogen fertilizer in a normal ton and a half per acre yield of straw as well as other nutrients important to crop production.

Plant pathologists also compared Ranger, Vernal and Ladak alfalfa varieties with the new Teton variety that was developed and recently released by the South Dakota Experiment Station. George Semeniuk, pathologist, explained that the Teton has been definitely superior in disease resistance, and winter hardiness and is well suited to pasturing.

In another sorghum stop, C. J. Mankin emphasized the three essential considerations for good sorghum stands. He underlined the importance of planting dates, the kind of seed (particularly the importance of using uncracked, adapted seed), and treatment with an effective fungicide to eliminate early disease losses. Fields Caveness, associate pathologist, also discussed work he is doing on nematode studies and surveys in this area.

Darrold Termunde, graduate assistant, recommended that corn be planted at the rate of 8 to 12 thousand plants per acre for most effective grain yields. He based his remarks on rate-of-planting studies which he has been conducting for the past two years. He pointed out that corn crops require a longer period to mature as the plant populations increase.

Other agronomists explained the objectives of the corn breeding program and some of the factors scientists must contend with in breeding sorghum. Another example of the results of breeding was a sample of a single cross dent corn that produced a full plump ear while old standby varieties such as Flint growing along side, failed to do as well under the current drouth condition.

Another stop concerned the use of soil sterilants. One of the most effective chemicals, called Simazin, applied at the rate of three pounds per acre satisfactorily controlled weeds and eliminated at least two cultivations in corn, the agronomists noted. Larger doses controlled weeds still better but limited oat yields the following year, they concluded.

Prentiss Drug Names Canadian Representative

NEW YORK—Charles Albert Smith, Ltd. has been appointed exclusive Canadian representative and distributor for Prentiss Drug & Chemical Co., New York, manufacturers of basic insecticides and Warfarin rodenticide.

The Canadian firm has acted for many years as distributor for John Powell & Co., until the present appointment. Charles Albert Smith, Ltd., maintains sales offices and warehouse stocks of Prentiss materials in Toronto and Montreal and has a western branch at New Westminster, B.C.

CONVENTION PLANNED

BILOXI, MISS. — The National Junior Vegetable Growers Assn. will hold its annual convention Dec. 7-11, at the Buena Vista Hotel here. Chesley Hines, head of the convention committee, promised a full program of activities.

Dr. William H. Schuette Elected Dow Officer

MIDLAND, MICH. — Dr. William H. Schuette, general manager of the Dow Chemical Company's Midland Division, was elected a vice president by the board of directors following the 61st annual stockholders meeting here. He will continue his duties as division general manager.

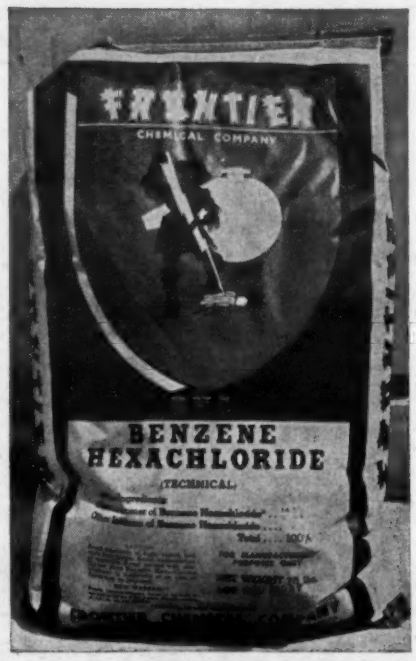
Incumbent officers and members of the executive and finance committees were reelected by the board.

Starting his Dow career in the chemical engineering laboratory at Midland in 1941, Dr. Schuette moved to styrene monomer production and in succeeding years was associated with the production of Styrofoam and Styron.

He served three years as assistant production manager of Styron and was named plastics production manager in 1952. In January, 1955, he was promoted to the post of assistant to the division general manager and the following June became division general manager. He was elected to the board of directors in 1957.

Irrigation Study Started

KNOXVILLE, TENN.—A research study to obtain data on the long-range effect of irrigation on net farm income is being conducted by the University of Tennessee agricultural experiment station in cooperation with the Tennessee Valley Authority. The study involves not only the effects of irrigation on crop growth but also the proper combination of irrigation, fertilizers, and other farming practices in the light of drouth occurrence and other cost and benefit factors. The study is being conducted mainly with forage crops.



NEW PACKAGE DESIGN — Frontier Chemical Co., a division of Vulcan Materials Co., has announced a new package design, as shown, for benzene hexachloride.

U.S. Steel to Market Ammonium Sulfate In Granular Form

GARY, IND.—Ammonium sulfate in granular form will be marketed by United States Steel in certain areas of the Midwest for the first time this fall, it has been announced here by Charles W. Baldwin of Pittsburgh, director of U.S. Steel's chemical sales division.

The new product has become available as the result of the installation of facilities for its production at the coal chemical recovery plant of U.S. Steel's Gary Steel Works.

Mr. Baldwin pointed out that introduction of this new product, known as USS Granular Ammonium Sulfate, in the midwestern area is one phase of the corporation's observance this year of it 50th anniversary in the chemical industry.

Agronomists from several midwestern states viewed the new facilities at a special open house held at the plant last week. At the same time, distributors in the present marketing area were given an opportunity to see production of the USS granular product.

The new facilities at Gary involve the compression of standard ammonium sulfate crystals. The resultant material then is dried and passed through granulating rolls which reduce the size of the compressed material into properly shaped granules, followed by screening to produce a uniform size. The equipment recently installed includes two sets of compacting or compression rolls and three sets of granulating rolls together with auxiliary dryers and coolers.

NITROGEN SHIPMENT—Officials of the Aylco Liquid Fertilizer Co. of Sullivan, Ill., witness the dispatch of a 40-car train of nitrogen to their Illinois plants and dealers from the Sohio Chemical Co. at Lima, Ohio. Left to right: Edwin Aylward, William Ingram, Charles Michael, Cecil Baylor, Dean Poole and Dwayne Haas.

Sohio Chemical Ships 40-Car Train of Nitrogen To Illinois Firm

LIMA, OHIO—A shipment of nitrogen solutions requiring a 40-tank-car train and 11 tank trucks was dispatched from the Sohio Chemical Co. plant here recently to the plants of Aylco Liquid Fertilizer Co. and its dealers in Central Illinois.

Edwin Aylward, Aylco president, and other company officials were on hand to see the transportation fleet depart. In this shipment was more than 400,000 gallons of nitrogen solutions or enough to produce some 3,000,000 bu. of wheat, according to Mr. Aylward.

Fourteen of the cars of nitrogen solutions were scheduled to be delivered to the Aylco home plant in Sullivan, Ill.; six to the Aylco plants in El Paso, Ill.; five to Harvel, Ill. and five to Rochester, Ill. In addition, cars from the train will be diverted to the plants of 13 Aylco dealers: Brandt Fertilizer Co., Pleasant Plains, Ill.; Fuller Seed Co., Lincoln, Ill.; Brown Fertilizer Co., Waverly, Ill.; E-Z Way Fertilizer Co., Watseka, Ill.; Illini Phosphate Co., Champaign, Ill.; Hewitt & Ware, Hillsboro, Ill.; Dyer Fertilizer Service, Paris, Ill.; Graham & Ragle, Brockton, Ill.; Earl Davies, Maxon, Ill.; Thomasville Grain Co., Thomasville, Ill.; J. H. Combs & Sons, Carlinville, Ill.; Tiskilwa Farm Service, Inc., Tiskilwa, Ill.; Tiskilwa Farm Service, Inc., Ohio, Ill., and Pelz Fertilizer Co., Toluca, Ill.

Aylco Liquid Fertilizer Co. will use this trainload of nitrogen to manufacture mixed liquid fertilizers as well as for direct application to the soil.

NPFI Establishes Agronomy Scholarship at Maryland

WASHINGTON — An agreement has been reached by the National Plant Food Institute and the University of Maryland to establish an undergraduate agronomy scholarship at the university, according to Dr. W. H. Garman, NPFI northeastern regional director.

Each year a junior or senior undergraduate majoring in agronomy will be selected as the recipient of the award which will consist of $200 in cash, a plaque which will be retained by the university, and a key inscribed with the winner's name.

The selection will be made by a joint committee consisting of faculty members in the Department of Agronomy and representatives from the newly-organized Student Agronomy Club.

Darrel D. Lowell

U.S. Potash Promotes Two to New Positions

NEW YORK—Ben R. Pickering has been reassigned as sales representative for all industrial accounts for the United States Potash Co., John E. Fletcher, vice president, has announced.

Succeeding Mr. Pickering as sales representative for agricultural accounts in the northwest territory will be Darrel D. Lowell, who recently joined the organization, Mr. Fletcher said.

Mr. Pickering, a graduate of the University of Nebraska, joined U. S. Potash in 1951. Since 1952 he has held the northeast territory position.

Mr. Lowell, who joined the firm in July, is a graduate of Kansas State College.

Both will headquarter in New York.

Planning Advances for New California Plant

FRESNO, CAL.—Two steps were taken recently in the program for building a nine million dollar wholly farmer-owned and controlled chemical fertilizer plant near here.

The board of directors of Valley Nitrogen Producers, Inc., recently authorized a letter of intent to the Chemical Construction Corp. of New York. This action indicated progress in raising sufficient capital by farmers and farmer cooperatives to commence preliminary work in determining the exact location of the plant in the San Joaquin Valley.

In other action, the Berkeley Bank for Cooperatives approved plans for the proposed fertilizer plant. The approval was given in a "statement of evaluation" issued in response to inquiries by bank patrons and mailed to some 60 agricultural cooperatives throughout the state.

Spencer Signs Contract For Its Henderson Operation

KANSAS CITY—Spencer Chemical Co. has announced the signing of a new contract with Local 644, International Chemical Workers, AFL-CIO, bargaining agent for hourly employees at its Henderson, Ky., works.

The plant has been operating without a contract since expiration of the previous agreement on July 31. The basic change in the new contract is a provision for a 6¢ per hour "across the board" wage increase. Expiration date for the new contract will be July 31, 1959.

The Henderson operation produces ammonia, nitrogen solutions for the fertilizer industry and nylon resin. In addition, a 100-ton-per-day plant for both liquid and prilled urea fertilizer is in the final stages of construction there.

Results of Fertilizer Program to Be Viewed

PORTLAND, ORE. — Three year results of a planned fertilizer and forage production program will be observed at a field day to be held at the Oregon Grassland Demonstration farm near Hillsboro Sept. 30, beginning at 9:30 a.m., according to Palmer Torvend, county agent.

The objectives of this program have been to develop a demonstration showing maximum forage production and the efficient use of this forage in a dairy farm operation. Phases of the program to be shown on the field day will include results of the proper use of fertilizers and lime based on soil tests, pasture management and rotation grazing, planting the best producing forage crop varieties, proper irrigation according to moisture stakes, efficient use by livestock of feed produced, and herd management, Mr. Torvend said.

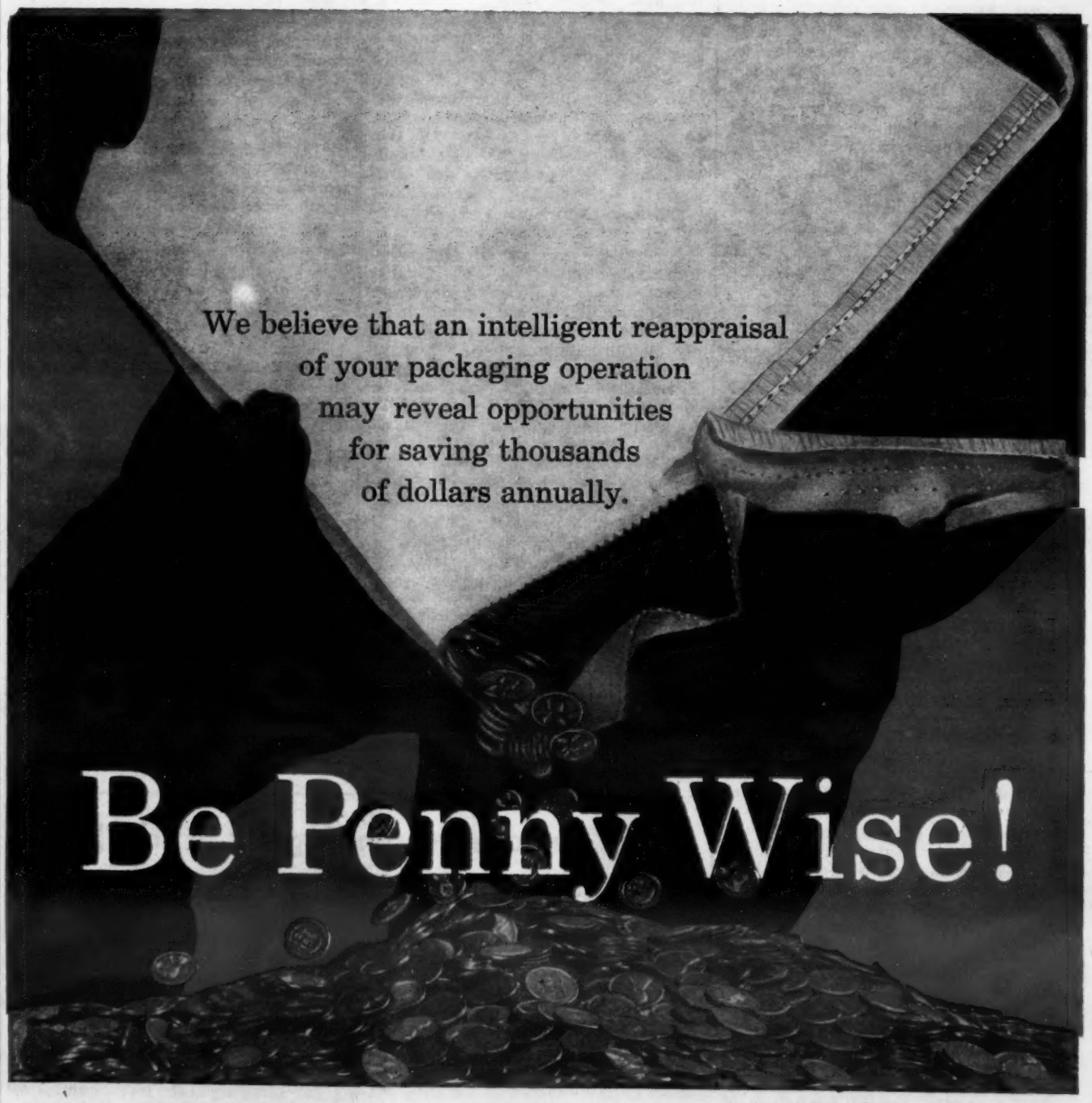
A technical committee consisting of Oregon State College specialists, Soil Conservation Service, Agricultural Stabilization Committee, Farmers Home Administration, Pacific Northwest Plant Food Assn. and Portland General Electric has worked together to provide the best technical information possible for this demonstration farm.

The farm is owned and operated by Lennox Blatchford and is located 3½ miles southeast of Hillsboro on River Road. A summary of production data and results will be presented at the field day by various specialists who have participated in developing plans for the farm. The Oregon farm demonstration project was started as a result of a contribution of $1,000 by the plant food association for fertilizer. The second year, local interests provided another $1,000 and this year Mr. Blatchford has financed the fertilizer for the farm.

The farm was selected because of its low production history and because it was representative of many similar type farms through the Willamette Valley. This particular farm had been in cultivation since 1896 and much of that time had been used for grain production on a rental basis. The demonstration farm has been in the ownership of the Blatchfords for eight years, three of which have been under this program.

GIFT BUYS BOOKS

NEW HAVEN, CONN.—A gift of $100 by Mrs. John F. Adams, Hamden, has been used by the Connecticut Agricultural Experiment Station to purchase 11 technical boks on plant pathology and allied sciences. The gift was made in memory of her father, Benjamin Minge Duggar, distinguished investigator, teacher, and consultant in antibiotics, virus disease of plants, and plant physiology.



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INSECT, PLANT DISEASE NOTES

Arizona Approves $30,000 To Fight Bollworm Infestation

PHOENIX, ARIZ.—The Arizona Commission of Agriculture and Horticulture has been authorized to spend up to $30,000 to help eradicate the pink bollworm in Maricopa County cotton fields.

In a proclamation, Gov. McFarland declared that a $27,000 emergency fund which was approved in July for insect control, was insufficient to meet the present crisis. In declaring a continuing state of emergency in the county, the governor asserted that the bollworm constitutes a menace to the state's cotton industry.

Rodent Problem in Texas Calls for Modern Pied Piper With Up-to-Date "Lures"

BIG SPRING, TEXAS—A modern Pied Piper could stay busy for several months if he came to Texas. The rats and mice are swarming the countryside in many counties, and have now started migrating to the cities. Some towns are now waging eradication programs, while farmers are putting out poison bait.

The main obstacle on the farms, however, is the plentiful supply of grain left in the fields after harvest. Until hunger forces the rodents to the bait, they are not eating it with enthusiasm.

The latest invasion was reported here in Howard County. City housewives say these are the first rats and mice they have had in years.

"It's not really an invasion," said James Taylor, county agricultural agent, "but the result of two good grain crops in a row. Most of the rats and mice died or starved during the long drouth, but now they are building back to large numbers."

Health authorities warn that with the first cold weather, the pests are likely to leave the fields and converge on nearby villages and towns.

Bait being used is Warfarin and Fumarin. It is expected to be more effective with the coming of cold weather when the rats and mice seek shelter under buildings and do not wander so far in search of food.

Late Blight Called Threat To Connecticut Vegetables

NEW HAVEN, CONN.—"Late blight is now a possible threat to tomatoes and potatoes in Connecticut, although the destructive fungus disease has not yet been found here this year," says Dr. Saul Rich, pathologist for the Federal-State Plant Disease Warning Service here.

"Late blight has recently been reported in Massachusetts, Rhode Island, and on Long Island," Dr. Rich warns. "The wet, cool weather has been very favorable for spread of the fungus which causes the disease."

"Tomatoes and potatoes may be protected from the disease by weekly sprays of any one of a number of standard fungicides such as Bordeaux, zineb, and inert copper fungicides. On tomatoes, maneb and Phygon have also given good protection against late blight.

"Late season infections by this fungus may be particularly damaging to potatoes. If the vines are not completely killed, or if the tubers sprout before they can be dug, the fungus can grow on any of the living foliage and infect the tubers when they are dug. Infected tubers will rot in storage."

Picket-Pin Gopher Horde Sweeping Over Colorado

FT. COLLINS, COLO. — The picket-pin gopher, alias the Wyoming ground squirrel, is sweeping over Colorado in alarming numbers, said Dr. Richard M. Hansen, Colorado State University assistant biologist.

"The spread of the picket-pin is one of the most serious pests ranchmen have to contend with," Dr. Hansen continued, "because the creature is active only about five or six months of the year and goes into hibernation from the middle or late summer until the next spring. They are often found living in active prairie dog towns and readily take over abandoned burrows of prairie dogs that have been poisoned."

Originally the picket-pin was restricted to the northwestern counties of Colorado. New records acquired in the offices of the forest and range management section of Colorado State University indicate the picket-pin has been expanding its range about two miles a year over the past twenty years. Considering that he hibernates for six months, the picket-pin has been spreading at the rate of one third of a mile per month during its active period.

In 1930 the picket-pin crossed the Continental Divide and spread into several river systems east of the Rocky Mountains. By 1938 their southern limits extended to just south of Malta in Lake County, Fairplay in Park County and Thomasville in Pitkin County.

Now they have spread east from Fairplay to infest all of Park County except the southeastern corner. Their southern limits extend to within 17 miles of Cotopaxi in Fremont County and within 12 miles of Salida in Chaffee County. They are also established in Gunnison County in the vicinity of Taylor Park reservoir. It is likely they are also present in other tributaries to the Gunnison River.

Dr. Hansen offers several reasons for their alarming spread into new areas. Most of western Colorado is well suited to the requirements of the picket-pin. Construction of highways, water diversion projects and contouring has provided ideal conditions for food and burrowing. It has been noted that the picket-pin has spread most rapidly under these conditions.

The recent die-off of the prairie dogs due to a plague in the late 40's may have also aided in the picket-pin's spread since the prairie dog's burrows may remain several years after a die-off and offer ready made homes.

It is likely that within the next 10 to 15 years the picket-pin will occupy additional ranges and meadows. He should have no trouble in spreading to Grand Mesa, Black Mesa, the Gunnison River valleys and the San Luis Valley.

Dr. Hansen says they are not difficult to control and it does appear that present control methods are able to stop their spread. Local controls where they are abundant does reduce damage to rangelands and crops. A conservative estimate of the picket-pin's damage in Colorado would be the equivalent loss of two and a half million cow days of grazing.

Arizona Farmers Warned To Keep Close Insect Watch

PHOENIX, ARIZ.—Insects continue to cause damage, and fields should be kept under close watch for at least two or three more weeks.

Perforators continue to be a threat in many fields in Maricopa County. Bollworms were on the increase in all areas and new hatches of woolly worms are coming off. Controls, generally, have been very good.

Yuma County's control measures have given excellent results. Leaf perforators and woolly worms are both down. Lygus and bollworms, however, could still do a lot of damage to the corn crop.

In Graham County stink bugs are hitting cotton heavily in all parts of the county and are doing damage. Controls by aircraft are underway.—J. N. Roney.

Insects Damage Soybeans In Some Maryland Counties

COLLEGE PARK, MD.—Damage to soybeans caused by several insects was noted in a special survey conducted in Worcester, Dorchester and Caroline counties in mid-August.

Green cloverworms were very numerous in Worcester County and causing noticeable foliage damage. The worms averaged nine per foot of row and were in all stages of growth. In addition, the yellow-striped armyworm and a few grasshoppers were present. Numbers of these leaf feeders were much lower in Dorchester and Caroline counties.

One serious infestation of mites was observed in a six acre field in Worcester County. The plants were stripped and stunted. In Dorchester County, mite infested soybeans were seen along the highway with a spot of six plants showing yellow, and plants with speckled leaves grading off into the field. It is apparent that the mites move from weeds, of which many are host plants, along the edge of the field.

Although the season has been favorable to plant growth, the spider mites may still become a difficult problem. Treatment should be made as soon as mites are noticed, and not after considerable damage with leaf drop has occurred. Thorough coverage is essential. The only way to get this is with a boom sprayer with drop nozzles or with heavy air blast equipment. The whole field must be treated, not just the damaged spot, as mites will be found widely distributed.—Theodore L. Bissell.

Virus Infections Suspected In Stored Cabbage Damage

GENEVA, N.Y.—Leaf spotting of cabbage in storage which appeared normal at harvest time is believed due to virus infections, according to John J. Natti, Cornell University plant disease specialist.

The trouble has proved serious, especially in Danish cabbage. In some seasons the entire crop of stored cabbage has had to be discarded because of the high occurrence of this condition, says Dr. Natti.

Observations on the causes of leaf-spotting have been made at the Experiment Station here and are summarized in the current issue of "Farm Research." Development of resistant varieties is held to be the chief hope at present for combating this trouble. Varieties with moderate resistance to cabbage mosaic have recently been developed, reported Dr. Natti, but still must be evaluated for resistance to leaf spotting in storage.

The virus component of cabbage mosaic, the duration of infection, and storage conditions which influence development of leaf spotting need to be established. It is hoped that this information may be of value in warning growers as the length of time cabbage may be stored without serious losses from leaf spotting, he said.

Two viruses attacking cabbage have been identified and may occur singly or together to produce what is commonly known as cabbage mosaic.

Under New York conditions, early season infection does not occur generally so that yields in commercial plantings are not seriously affected by cabbage mosaic. At harvest time, most plants appear to be free from infection, but in one season as many as 80% of heads picked at random from a commercial planting of Danish ballhead cabbage were infected with mosaic. Growers in general believe that most of the leaf spotting occurs in storage. Observations of the past year support this belief, Dr. Natti concluded.

Boll Weevil Migration Continues in Tennessee

KNOXVILLE, TENN.—This is the last report for 1958. Cotton continues to mature all over the area with picking going on in more fields this week. Rains hindered picking in some sections. Almost all fields of late cotton are cutting out at this time.

Boll weevil migration to areas not previously infested this season is now taking place. Considerable small boll injury is occurring in the southern counties. One field in Obion County was receiving considerable boll injury. This was one field that showed a carryover of hibernating weevils last spring. Only local migration from this area has been observed. There is a heavy enough infestation in this

(Turn to INSECT NOTES, page 21)

North Dakota Entomologists Study How To Take the Hop Out of Grasshoppers

FARGO, N.D.—Acting on the theory that you have to know your enemy before you can control him, entomologists of the North Dakota Agricultural Experiment Station have been studying the life habits of some of the more troublesome North Dakota grasshoppers. Dr. Gregory B. Mulkern is in charge of the projects.

It was believed that the hatching of grasshoppers in alfalfa fields was delayed until after the alfalfa was cut, since the alfalfa shaded the ground and kept it from being warmed by the sun. After the first cutting the sun warmed the ground and the eggs developed rapidly.

The researchers have observed that the red-legged grasshoppers hatch at approximately the same time in fields cut one to four weeks apart and at the same time as they hatch in pastures and exposed areas.

It has been thought that alfalfa is the main and preferred food of the red-legged grasshopper. The studies indicate that alfalfa alone is not enough for its development and survival. Grasshoppers in alfalfa fields eat many other plants in the fields, mainly weeds and grasses, and the proportionate amount of other plants eaten indicates that these plants are preferred. It may be that certain weed and grass species are essential for normal development and survival of the grasshoppers, the entomologists noted.

In studying the food habits of grasshoppers, the North Dakota researchers have borrowed a technique from the birdmen—instead of watching what plants the insects are eating, they net a quantity of feeding grasshoppers, and kill and preserve them. They make note of all the kinds of plants growing in the particular field. Later they examine the contents of the grasshopper crops and determine comparatively accurately the various kinds and amounts of plant material the insects had eaten in relation to food plants available.

When complete, the study will provide considerable new material on grasshopper species common to North Dakota, and will be the basis for more effective control methods, they said.

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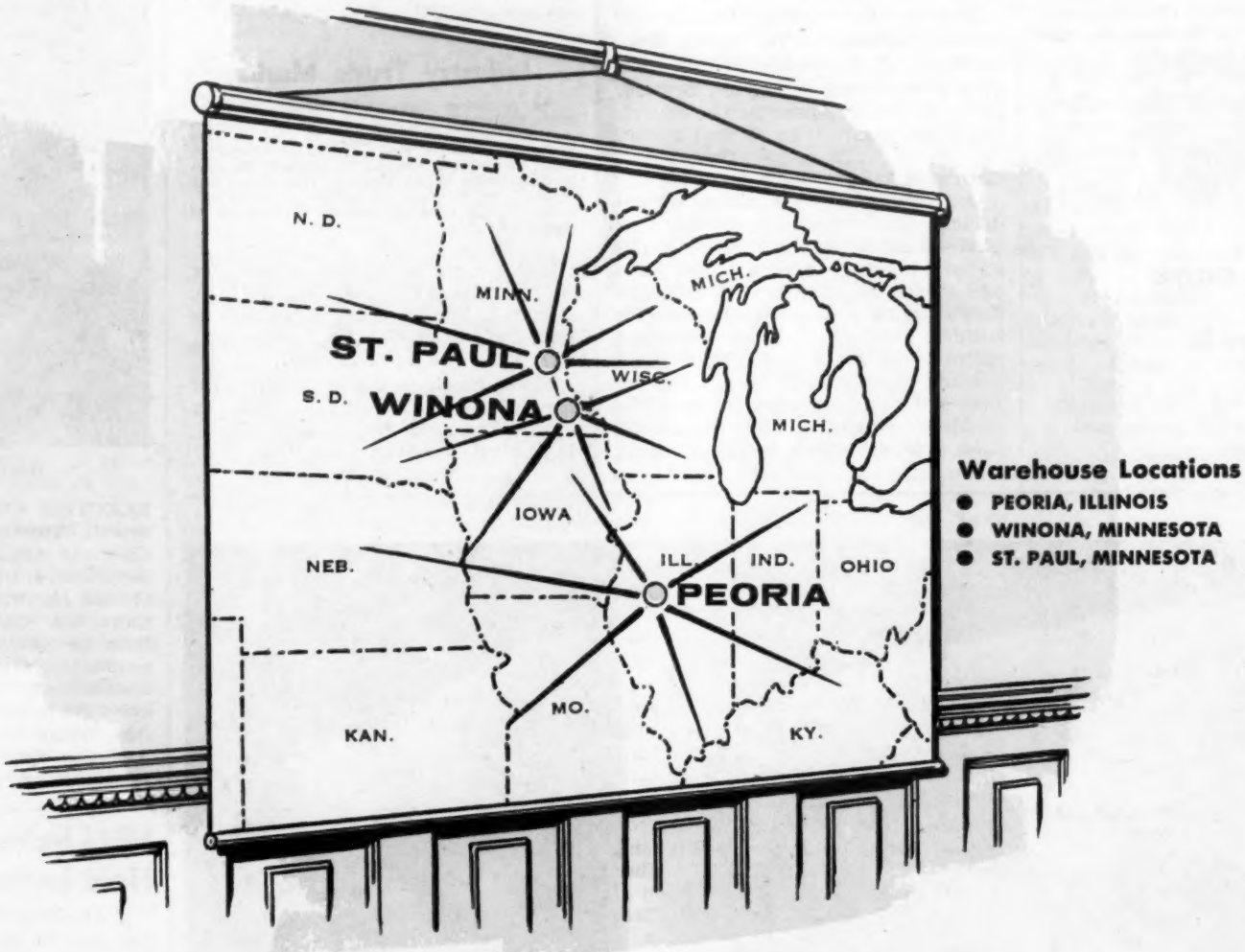

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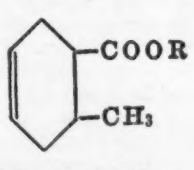
Industry Patents and Trademarks

2,851,392

Esters of 6-Methyl-3-Cyclohexene-1-Carboxylic Acid as Attractants for the Mediterranean Fruit Fly. Patent issued Sept. 9, 1958, to Samuel I. Gertler, Washington, D.C. A method of detecting and controlling infestations of the Mediterranean fruit fly which comprises baiting a trap with an attractant comprising an ester of the general formula



wherein R is selected from the group consisting of an alkyl group and a cycloaliphatic group.

2,851,335

Process of Producing Readily-Filterable Calcium Sulfate During Manufacture of Phosphoric Acid by the Wet Process. Patent issued Sept. 9, 1958, to Erich Heinerth, Dusseldorf, Germany, assignor to Henkel & Cie. G. m.b.H., Dusseldorf-Holthausen, Germany. In a process of producing a readily filterable calcium sulfate during the manufacture of phosphoric acid by the wet process, the steps comprising adding to at least one of the reaction components, before reacting calcium phosphate with sulfuric acid, a sulfate of a bivalent metal of the group consisting of magnesium, zinc, iron, nickel and copper, said sulfate being soluble under the reaction conditions, the amount of said sulfate added being at least about 1% by weight, calculated as bivalent metal oxide, of the solubilizable phosphorus pentoxide present in said calcium phosphate, and reacting the calcium phosphate with sulfuric acid in the presence of the sulfate of said bivalent metal.

Industry Trade Marks

.The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Super Cat, in capital letters, for rodenticides. Filed Aug. 16, 1957, by Lucian L. Spellings, doing business as Tom-Cat Products Co., Jonesboro, Ark. First use April 29, 1957.

Plant Food, in capital letters, for fertilizers. Filed July 16, 1958, by Plant Products Corp., Blue Point, N.Y. First use March 31, 1947.

Harold G. Sewell

ELECTED CHAIRMAN—Harold G. Sewell, Toronto district sales manager for Chemical Industries, Ltd., Agriculture Chemical Division, was elected chairman of The Plant Food Council of Ontario. Mr. Sewell was born in Shoal Lake, Manitoba. He graduated from the University of Manitoba in 1935 with a B.S.A. degree. He is an active member of the Agriculture Institute of Canada, and past vice chairman of the Plant Food Producers of Eastern Canada.

NPFI Industry Advisors Hold Initial Meeting

WASHINGTON—Members of the National Plant Food Institute Northeastern Industry Advisory Committee will hold their initial meeting at the Bald Peak Colony Club, Melvin Village, N.H., Sept. 23.

Presiding at the meeting will be Victor A. Ericson, Consolidated Rendering Co., who will serve as acting chairman. The opening session will precede the New England Fertilizer Conference slated for Sept. 24.

Richard E. Bennett, NPFI president, will outline the functions of the committees while W. R. Allstetter, vice president, will cover the legal aspects of committee operations.

Dr. W. H. Garman, northeastern regional director, will report on the recent meeting of the Northeastern Research and Education Committee and will review Institute projects in the Northeast.

Other topics to be discussed at the meeting include a review of the NPFI bankers program, the need for new research, including forest fertilization, plans for the 1959 New England Conference, committee tenure and the "Fertilizer Salesman's Manual."

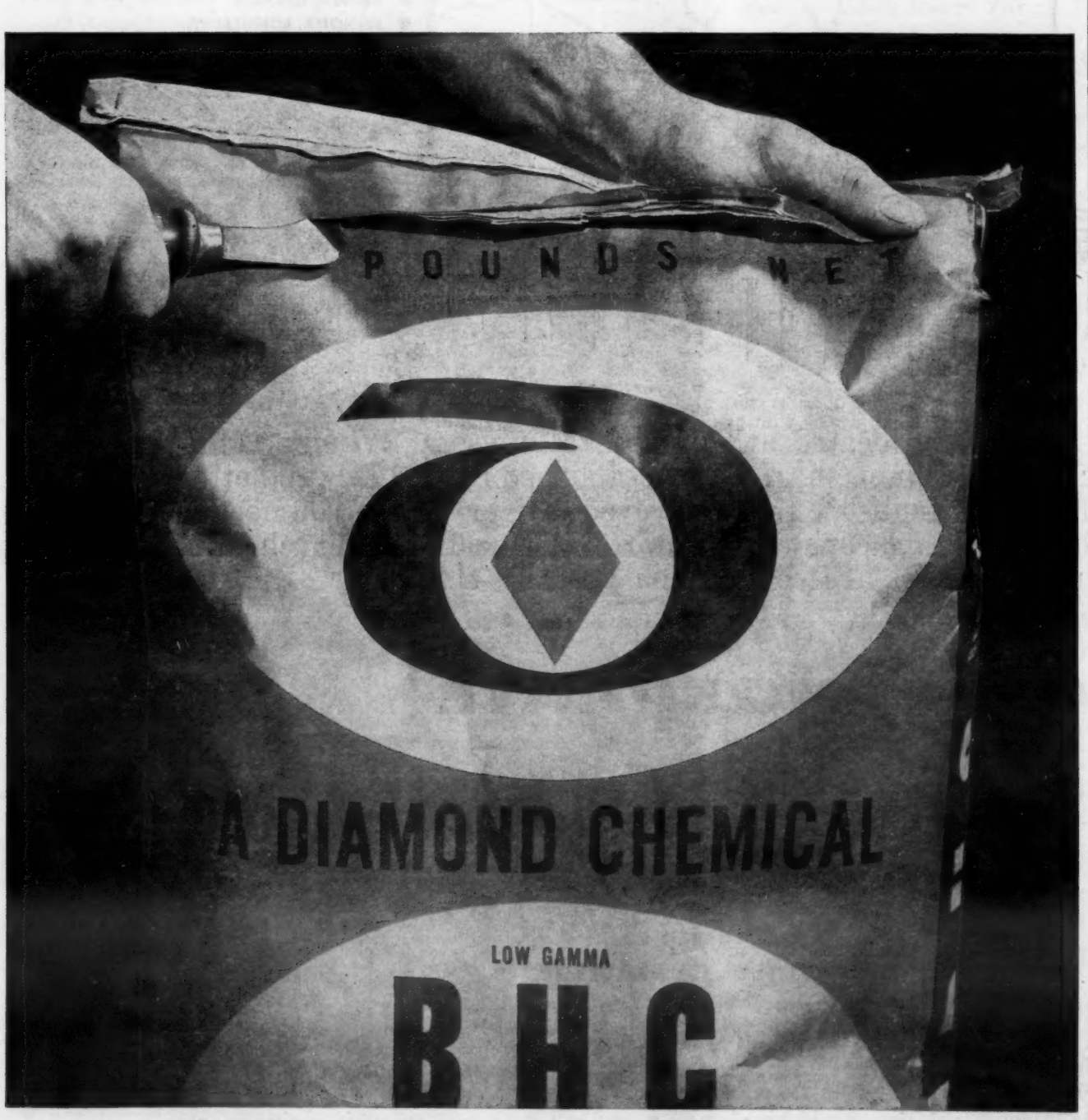
Israel Fertilizer Company Reports Increased Sales

HAIFA, ISRAEL—A 50% increase in sales during fiscal 1957-58 over the 1956-57 period was reported by Fertilizers & Chemicals, an Israel chemical combine and one of the country's largest manufacturers.

The increase was accompanied by a rise in net profits from 10.4% to 16.6%, after depreciation at full rate, the corporation said. The increase in profits was mainly a result of higher output stemming from higher productivity and production increase beyond capacity, it was noted.

OPEN IN CALIFORNIA

SALINAS, CAL. — Arrow Distributing Co., handling agricultural products, opened here recently. The firm distributes fertilizers, seed and chemicals for garden and farm use. Owners are Ralph Coelho of Fresno, and George Musante and Leonard Cling of Salinas.



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*Patent pending on this new, novel, Diamond-pioneered packaging development.

Diamond Chemicals

Economist Sees Less Capital Accumulation, Better Standard of Living for Farmers

LAFAYETTE, IND.—Looking into the future, N. S. Hadley, Purdue University agricultural economist, foresees a period in which "a smaller share of farm earnings will be devoted to capital accumulation and a larger share to family living."

Mr. Hadley points out that "farming as a business and farming as a way of life are rapidly becoming separated." Farmers are rapidly losing their identity as a class, he observes.

Prior to World War II, farmers tended to live somewhat to themselves, the economist recalls. They accepted standards of living somewhat below those of city dwellers with equal earnings; they placed a very high priority on the accumulation of sufficient capital to own a farm. Thus, they accepted a lower standard of living for most of their lives.

Mr. Hadley says he expects "fewer farm people to be willing to accept 40 years of reduced living standards in order to own a farm . . . more people will be satisfied as good tenants on good, big, well-organized, well-financed, efficient farms."

Significant changes will result in the areas of capital accumulation and transfer, according to the economist, who adds:

"Family accumulation will continue to be an important means of acquiring capital for agriculture, but with new methods of transfer from one generation to the next, and may also involve changes in legislation regarding corporate structures and tax laws.

"The ownership of real estate and operating capital will tend to become separated . . . we are likely to see substantial increases in tenancy.

"As specialization increases, we will have developed many new businesses serving agriculture. For example, a trend for confined feeding of livestock is beginning. Much of the feed will be processed. About $20,000 is required to establish an efficient feed processing plant. It has a capacity larger than necessary for most individual farms.

"In a number of neighborhoods, arrangements are being made for the local elevator to take the corn directly from the field, store it, process it and deliver it back to the farmer ready for his livestock . . . We are buying fertilizer applied on the land. As we move more and more in the direction of specialization, this trend will increase."

Mr. Hadley points out that as these businesses serving agriculture develop "they tend to supply capital and labor which would have otherwise been furnished on the farm."

Some large machinery companies are considering programs under which they may rent equipment to farmers rather than sell it, he asserts. The same idea is being carried out in connection with farm buildings.

Dow Reports Business Upturn in New Fiscal Year

MIDLAND, MICH.—The Dow Chemical Co. has experienced a slight upturn in business since the close of its 1958 fiscal year May 31, and nationally the recovery now under way might take the U.S. economy to its previous peak by mid-1959, Dr. Leland I. Doan, Dow president, told stockholders at the 61st annual meeting. The shareholders re-elected all incumbent members of the board of directors.

Dr. Doan said that the profit squeeze "is not only still with us but has worsened." He said a major factor in the squeeze was the inflexibility of prices in the face of continually rising costs during the recession period.

Other significant factors, he said, were increasingly keener competition among the producers of basic chemicals, of which Dow is one, and a "new kind of competition" from numerous companies which, he said, have branched out into chemical manufacture "often by the relatively economical procedure of buying processes."

In addition, both Dr. Doan and Dr. R. H. Boundy, vice president and director of research, emphasized that the development of new products from research was important to overall profits and future company growth. Dr. Boundy told the shareholders that Dow has introduced 77 new products to industry since 1952 and that 1958 sales of this group of products totaled $45 million.

"While the number of new products and their sales have varied from year to year, the trend has been generally upward," Dr. Boundy said.

A feature of the meeting was an exhibit of new products added to the company's major product lines—industrial chemicals, plastics, agricultural chemicals, magnesium and fibers.

Chemical Companies Down, Employment Up in California

SAN FRANCISCO — The number of firms manufacturing all types of chemicals in California fell from 1,161 to 1,099 between the last day of 1956 and the last day of 1957, reports the California State Department of Employment. But employment in these plants rose from an estimated 40,300 during the final three months of the earlier year to 41,500 for the same period of 1957.

In the fertilizer industry, the number of factories dropped from 75 to 70 over the same period, but employment was up slightly—from an estimated 1,200 workers to 1,300 for the corresponding periods of both years. There was no separate count given for manufacturers of various kinds of insect and weed killers, these being grouped under a general "miscellaneous chemicals" heading.

The number of wholesalers of various kinds of farm products also declined between the two periods from 1,141 to 1,101 on the two corresponding final dates of the years, but the total employees in these establishments rose from an estimated monthly average of 20,500 to 20,800.

As to the retail division of the industry, the number of farm and garden supply stores fell from 1,327 to 1,241. Employment in these stores remained almost the same, at about 5,800 workers, both sales and clerical, according to reports of the division of statistics and research.

Eastern States Announces Terminal Opening in Georgia

SAVANNAH, GA.—The opening of Eastern States Petroleum & Chemical Corp.'s eighth terminal has been announced by E. A. Von Doersten, manager of divisions for the firm. The new terminal is located in Savannah.

In an expansion program started over two years ago, the firm's plan has been to open terminals in strategic locations in order to give better service to customers located within these areas, Mr. Von Doersten said.

Mr. Von Doersten said that a complete line of the firm's products is carried by each terminal.

FARM STORE STARTED

PINOLE, CAL.—A new garden and farm supply store owned by Anna S. King opened here recently.

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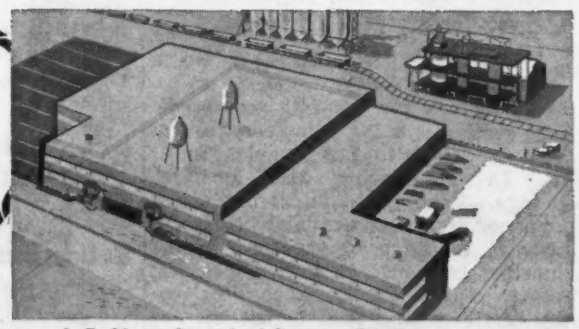
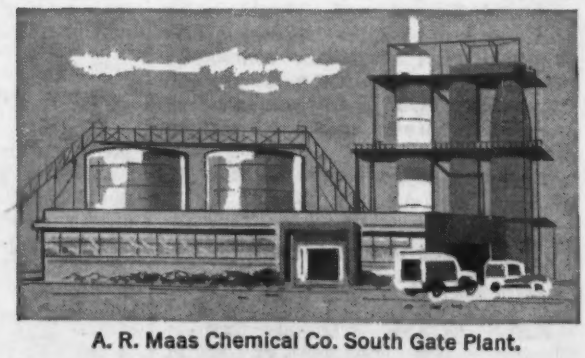


A. R. Maas Chemical Co. new Richmond plant.



A. R. Maas Chemical Co. South Gate Plant.

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Utah's Beetle Fight Past $1 Million Level

State Goes All-Out To Stop Infestation

SALT LAKE CITY—Utah's forest beetle fight has grown to multi-million dollar proportions with almost $1,300,000 already appropriated or budgeted over a four-year span.

The money will be spent for insecticides and other control measures on five national forests within the state.

By far the largest slice, $1 million, will go to battle a 146,000-acre infestation of mountain pine beetles on the northern slopes of the Uinta Mountains in Ashley National Forest.

Some $280,000 is earmarked for the battle on the Engelmann spruce beetle in the Three Corners area where the states of Utah, Wyoming and Idaho join. Forty-six square miles are infested on the common boundaries of the Ashley, Uinta and Wasatch national forests.

The remainder of the sum will be spent on the Manti-LaSal forest and on the Dixie National Forest.

Of the funds planned for the project, $300,000 already has been appropriated. The other $1 million will be appropriated over the next four years.

Eight million board feet of lumber —enough to build 1,000 five to six-room houses—already has been removed from the Three Corners area in a move to salvage infected timber.

"If left," says Paul Grossenbach, insect control forester for Region 4 of the U.S. Forest Service, "the wood in the trees would just decay and hamper the growth of new trees as well as spoil the forest's scenic beauty.

"By logging the stricken trees from the forests, the wood can be salvaged and the beetles carried away from the forests to be destroyed," he commented.

Crews move into the logged areas with insecticides to spray all remaining stumps and trees.

Du Pont Moves Pacific Coast Sales Headquarters

WILMINGTON, DEL. — The Du Pont Co.'s Pacific Coast district sales headquarters for its nitrogen products section is being transferred from San Francisco to Los Angeles Sept. 22. In announcing the location change, Francis M. Jornlin, sales manager, said the availability of additional facilities in the new headquarters is a further step in providing increased customer services to the fertilizer and feed industries.

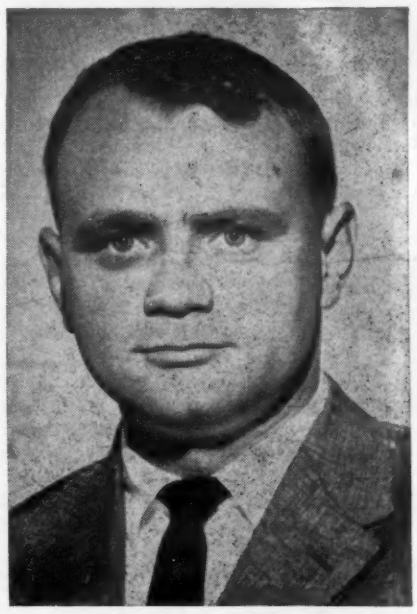
Marion N. Crady will continue as district manager. Dexter M. Thompson and Lawrence J. Munzenmaier will continue as sales representatives for "NuGreen" fertilizer compound, "Uramite" fertilizer compound, and "Two-Sixty-Two" feed compound in the southwestern and northwestern states, respectively.

The new address will be: 2930 E. 44th St., Los Angeles 58, Cal.

T. F. Fricke Joins Crag Agricultural Chemicals

NEW YORK — Union Carbide Chemicals Co., division of Union Carbide Corp., has announced the appointment of T. F. Fricke to the Crag Agricultural Chemicals staff at White Plains, N.Y.

Mr. Fricke graduated from Cornell in 1955 with a bachelor of science degree in agriculture. He will be active in development and sales of Union Carbide's new Sevin insecticide, which the company expects to market next year on a commercial basis.



James L. Engfer

James L. Engfer Joins Croplife Editorial Staff

MINNEAPOLIS — Appointment of James L. Engfer to the editorial staff of Croplife has been annouced by Milton B. Kihlstrum, president of The Miller Publishing Co.

Mr. Engfer is a 1958 graduate of the University of Minnesota School of Journalism, where he was named "outstanding graduate." During his senior year at the university and during the past summer he worked for Greater Amusements Magazine and the Mississippi Valley Lumberman, both in Minneapolis.

Mr. Kihlstrum said that the addition to the Croplife staff at this time was made in view of plans to substantially increase Croplife's editorial service next year. Beginning in January Croplife will publish once each month an all new production issue designed for production, technical and management personnel in fertilizer and pesticide plants.

Chemagro Names Midwest Sales Representative

KANSAS CITY—C. D. Deggendorf has been appointed as a Midwest sales representative by Chemagro Corp., Kansas City, manufacturer of agricultural chemicals. Mr. Deggendorf will maintain his headquarters at Chemagro's regional sales office in St. Louis.

Previous to his appointment by Chemagro, he held sales positions with California Spray-Chemical Corp. and Wilson & George Meyer & Co.

Builds Fertilizer Plant

GARFIELD, WASH.—The McGregor Co., with headquarters at Hooper, is building a new fertilizer plant here. It will handle farm chemicals as well as fertilizers. Dan Imler will be manager here.

NEW FIELD FOR DUSTERS

MEMPHIS—Agricultural aircraft, including cropdusters, will be allowed to use the Greenville, Miss., Municipal Airport as soon as necessary facilities are added. The city council adopted rules for the cropdusters to use the facility in light of an increase of boll weevil activity in the area, it was reported.

NEW AIRCRAFT FIRMS

FRESNO, CAL.—Three new agricultural aircraft firms in California have joined the Agricultural Aircraft Assn., announces executive secretary Wanda Branstetter. They are the M and W Company of Porterville, headed by R. W. Merritt and A. G. Wright; T. B. M., Inc. of Tulare, headed by Robert W. Moore, and C. B. Johnson, Inc. of Five Points, headed by C. B. Johnson.

Cotton Pest Control Results Viewed by Press on Southern U.S. Inspection Tour

By LAWRENCE A. LONG
Editor of Croplife

ALEXANDRIA, LA. — Results of season-long treatments of cotton for control of insect pests were shown to members of the business and farm press, radio and television farm directors and other interested persons in a three-day plane-and-auto inspection trip to fields in Mississippi, Arkansas and Louisiana, Sept. 16-18.

Sponsor of the tour was Hercules Powder Co., Wilmington, Del., with whom a hundred farmers with nearly 34,000 acres of cotton cooperated in a pest control program during the 1958 growing season. The program was an enlargement of that of a year ago in which some 1,700 acres were involved in a project to illustrate the use of Toxaphene and Toxaphene-DDT in cotton pest control.

Despite rainy days, soggy fields and turbulent flying weather, the group visited the farms of cooperators, talked to the growers, inspected both treated and untreated fields and found the farmers enthusiastic about the program and the prospects for a good crop in 1958 (provided the rains stop long enough to permit completion of picking).

Some of the growers expressed only a minimum of concern about the current rains, however, having already harvested much of their crops. The early-season pest control program, a feature of the 1958 tests, had brought earlier maturity of cotton in many instances, and reduced the weather risk of the grower accordingly.

W. A. Arledge, Natchitoches, La., with 216 acres of cotton, has already picked much of his 1958 crop, and expects to make two bales an acre, he told reporters at his farm. He has put no cotton in the soil bank, he said, and has spent less on insecticides this year than he did last year. In 1958 he applied four early-season and 12 late-season applications.

L. S. Frierson, Jr., Shreveport, La., with some 200 acres of cotton in the 1958 program, said that the first bale of cotton in Caddo Parish came from his farm this year. Since that first bale, some 74 additional ones have come from the 200 acres in the pest control tests.

"While I have been getting these bales from my farm, my neighbors haven't gotten a one yet," Mr. Frierson said. "If wet weather continues, or winter comes, they just won't get their crop out."

Mr. Frierson told some of his observations in connection with the program:

"We sprayed the next day after each cutting of alfalfa, because the plant bugs would come swarming into the cotton fields as soon as the alfalfa was cut."

The control program, however, prevented any plant bug damage, the farmer reported. "The early maturity of the cotton is the most important thing. The full-season program makes the crop earlier," he observed.

Another cooperator, M. A. Roberson, Gilliam, La., told the visitors that his 246 acres of cotton is doing well, and some areas may make 3 bales an acre. He said he used ground spraying equipment until the cotton reached full height, then employed planes to apply the final dose. Boll weevils, bollworms and plant bugs were the principal pests this year on his farm, he said. Mr. Roberson has already picked 113 bales from his plantation.

Another Natchitoches farmer, C. E. Cloutier, has 800 acres of cotton in the program, and told the visitors that by the first week in September, he had picked 100 bales. He controlled boll weevils, bollworms and fleahoppers, as well as other pests during the growing season, with four early season applications and 11 late applications.

Arkansas farms visited by the group included that of the W. I. Payne Estate, Sherrill, Ark. This test included 800 acres, on which a total of 13 applications, five early-season, were made. Ernest Moore, manager of the farm, said the farm will average 1½ bales an acre. He began picking on Sept. 8.

"The insecticide program made this crop mature faster. There's no question about it," he declared. "It is the cheapest crop we ever made."

A total of 873 acres of the Elms Planting Co., Altheimer, Ark., were observed to be maturing early. It had received a total of 16 applications—five early and 11 late. During June, it was pointed out, 89% of the fields were infested with fleahoppers and other plant bugs. But the program was reported to have prevented serious damage.

A number of plantations were inspected in Mississippi. These included the W. P. Scruggs Plantation, Doddsville, which had 1,162 acres in the program. Here good insect control was reported with four early and eight late applications. Plant bugs and fleahoppers were present in 90% of the fields during June and July, it was reported.

The plantation of Sen. James O. Eastland, Doddsville, Miss., with 1,512 acres was also inspected. Here it was reported that the cost of insect control during the 1958 season was less than that of last year, the comparative figures being $35 an acre last year and $11.97 in 1958.

At Greenwood, Miss., the O. F. Bledsoe Plantation, established in 1949, had for inspection some 1,136 acres which had received 14 applications; five early and nine late, with a total chemical cost of $14.23 an acre. During June and July, infestations of plant bugs reached the 95-100% level, it was reported.

Two other Greenwood area plantations were also visited: the Four-Fifths Plantation, with 920 acres of cotton and the Racetrack Plantation with 1,177 acres.

The entire three-state program was supervised by some 22 men employed either by Hercules or one of the several insecticide formulators cooperating in the program.

"The insect control program followed is essentially the same as the one officially recommended in the state of Mississippi and is based on the fruiting cycle of the cotton plant and the known habits of its insect pests," a Hercules spokesman explained. "A key feature is the starting of insect control measures early in the season when the cotton gets up to a stand.

"The 1958 season was one of the most difficult years in history for the southern cotton farmer. Growing conditions were most unfavorable because of adverse weather, replantings were commonplace, and some farmers replanted as many as three and four times.

"Insects were definitely a production problem in 1958, with damage from one or more varieties of pests being reported when the plants started forming squares. The insects continued to move into fields during the rest of the season.

"The mixed population of insects reported this year indicates that it is not one, but a combination of insects, which if not controlled, destroy early cotton. This makes necessary an automatic insect control program, since farmers often find it impossible to make counts of the various insects which form the complex that can destroy an early crop."

Special Merchandising Section

Better Selling

Marketing News and Features

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

Situated just a few yards off the Moraga Valley Highway at Orinda, Cal., is a modern retail store resembling a ranch-type house which does a sizable business in garden and farm chemicals. The store is the Moraga Valley Nursery, owned by Galen Darr who is now retired from active participation in operating the business. Bob Waschmirth, a veteran of 25 years in the nursery business, is the manager. He is also the one who designed the attractive new store earlier this year.

Made of knotty pine, wiped white with clear lacquer, the building includes about 1,800 sq. ft. of actual store area with office and storage space and a hot house located at one end. One of the outstanding features of the store is the 15-ft. wide concrete walk extending around three sides of the building. An overhang completely covers the walk allowing it to be used for storage of bulky items and for display purposes. Banks of flowers and plants are arranged in the front of the store for Easter, Mother's Day and other special occasions.

Large bags of sand, peat moss and fertilizers are stored at the back of the store under the overhang. Hand trucks are used to transport them around to the front where customer parking is available. Sliding doors about 10 feet wide provide easy movement for materials in and out of the store. Two of these doors are located in the back and another is situated in the south end of the building.

Easy rearrangement of facilities inside the store is made possible by the far-sighted designing of Mr. Waschmirth. All of the floor shelves have casters, and the wall shelves are attached by small pins, easily removed. When seasonal displays are set up in the store, shelving is shifted to meet the needs of the moment.

Complete lines of lawn and garden supplies and equipment are on hand in the store. Extensive shelves against the west wall contain sprays and dusts. Tools, both manual and powered, are located against the south end of the building as are shelves containing fertilizers.

Floor shelves situated throughout the store hold spray cans, grass seed, small hand tools, gloves, garden hose and additional containers of sprays and chemicals. Wall space is used for displaying colorful flower pots for home use, and an arrangement of Hydrocel containers for indoor and outdoor planting is located in the center of the store.

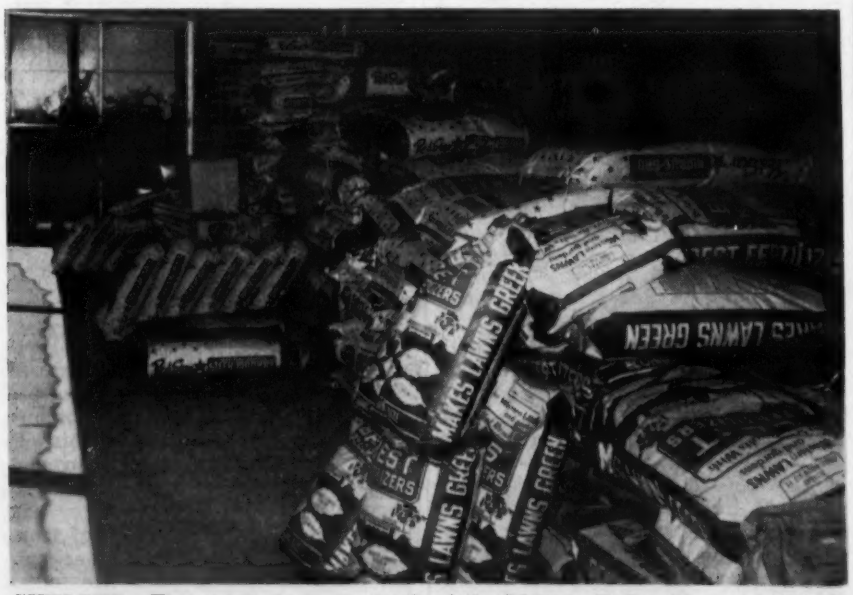
Over-all area of the nursery is two and one-half acres with home owners making up most of the customers. Five full time and a similar number of part time employees work the store and nursery. Better than $50,000 in sales is done annually.

One of the outstanding products grown there is the Mayten tree, found to be particularly suitable for the climate in the Orinda area. The tree, which survives frost and 15° temperatures, is an evergreen, semi-weeping variety. The nursery raises about 600 of them and in the last five years has sold more Maytens at the retail level than have been produced in the entire state of California in the same period.

In addition, the nursery handles a complete line of shade trees and bedding plants. Only about 15% of the stock is raised on the grounds, the rest being purchased from wholesalers. A driveway for delivery trucks separates the nursery area from the store and storage buildings.

Tropical plants for indoor use are kept in the hot-house, located in the rear of the store's north end. Other plant varieties and flowers are displayed in the greenhouse. Two storage buildings are located at the south end of the greenhouse.

Weekend promotions are carried on in June and October, and special prices for nursery and store products are made for these campaigns. During the year, advertising is run periodically in the Orinda Sun; and direct mail advertising is also used.



SHELTER—The overhang in the back of the Moraga Valley Nursery shelters bagged fertilizer stored there.

Colorado Farm Store Adds Customers, Builds Profits With 'One-Stop-Shop' Plan

By JESS F. BLAIR
Croplife Special Writer

One of the few all-chemical firms selling retail in the Rocky Mountain area is gradually being converted into a one-stop type farm store. This is McMurtry Seed & Fertilizer, Ft. Collins, Colo., which was built by Randolph McMurtry several years ago.

He built his store with one thing in mind—to handle farm chemicals exclusively. After several years in professional agricultural work, he saw the need for a place where someone could give farmers the type of technical service they needed.

Progress was quite slow at first, and it was not until the third year that the business really became profitable. Luckily Mr. McMurtry had some other income to tide him over those first years. After that, however, business increased until the years of hard work and close management were amply rewarded.

About a year ago Mr. McMurtry's story appeared in Croplife and this is an extra chapter to make it complete. At that time he was making soil tests for farmers, selling fertilizers and other farm chemicals and renting out applicators and spreaders. He was also making field checks for insects and working closely with other entomologists and government officials.

Mr. McMurtry still does all this, but he also increased his sales by adding extra merchandise. He added a line of garden and lawn supplies, began selling planting seed to farmers and gardeners, and put in many other items related to farming and outdoor hobbies.

"I had the space here," he said, "and these items don't take up too much room or require a lot of extra handling. And they bring in money during seasons when farming activity is slow."

The additional lines enabled him to reach a large segment of the city population.

Another advantage in adding extra products coincides with the present trend for farmers to do their shopping at one place. Because of traffic congestion, lack of time and parking space, not many customers like to go from place to place buying one thing here and another elsewhere. Fortunately Mr. McMurtry has plenty of parking room.

Mr. McMurtry believes that the fertilizer dealer must increase his trade radius and sell more, or else he must make it with extra sales from other merchandise.

"This seems to be the better method," he said, "and it can be done without a great outlay of capital. Also by watching the buying habits of people, the dealer can find many things to sell. Not only do they increase the volume, but they create a lot of tie-in sales. When treating an alfalfa field for weevils, I may also sell the farmer planting seed for his next crop."

This summer's business seems to bear out his belief that a farm store would bring extra profits. Farm chemicals sales were good, garden supplies and seed sold well, and he became acquainted with many new customers who had not visited the store before.

His philosophy is that nearly every type store is selling farm chemicals, so he might as well start selling some of their regular products. And his long training in plants, insects and soils has put him in a position to give these new customers valuable information and service — which is something they can't get from the clerks in the department and hardware stores.

Magnolia to Construct New Dallas Factory

DALLAS, TEXAS — Construction on a 22,500 sq. ft. factory has been started in the Brook Hollow industrial district of Dallas, Magnolia Chemical Co. has announced.

Tom Hanley, president of Magnolia, said the new building is part of a nationwide expansion of the company's operations. The new factory will more than double the size of Magnolia's Dallas facilities, Mr. Hanley said.

The Brook Hollow building, situated on a large, landscaped site, will have 2,250 sq. ft. of air conditioned office space. Two truck-loading doors will open on a paved, off-street turning apron and a paved off-street parking space will be added.

Mr. Hanley said construction will be completed about Nov. 1, and about 40 employees will work in the new building.

Peach Tree Regulation Revoked in New Jersey

TRENTON, N.J.—The State Board of Agriculture has revoked a quarantine regulation, in effect since 1939, which prohibited the entry into New Jersey of peach trees from areas infected with "X" disease.

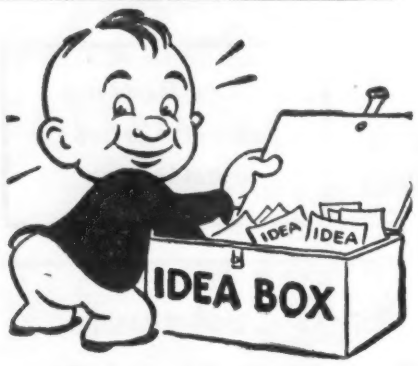
The action was recommended by Frank A. Soraci, director of the New Jersey Department of Agriculture's division of plant industry, who said that the 20-year-old embargo was no longer justified in the light of present knowledge about this peach disease.

POTATO FIELD DAY

RIVERSIDE, CAL.—The University of California will conduct a vegetable crops potato field day here on Oct. 10, according to the California Fertilizer Assn. The formal program will be given in the faculty clubhouse, which is adjacent to the administration building of the citrus experiment station.

QUOTE

Almost overnight the science of fertilization has been swept into the modern current of specialization, requiring special formulations for specific types of soils and crops. If our operation were limited to the manufacture of fertilizers in general use just four years ago, we would be producing only three products. Instead, we are producing nine different products. We know that the farmer can make more money with a plant food program tailored to his needs.—Arthur W. Mohr, president, California Spray-Chemical Corp.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6799—Drum Filter Bulletin

Dorr-Oliver, Inc., announces the availability of a 24-page, two-color bulletin entitled "The Oliver Continuous Rotary Drum Filter for the Process Industries." The publication describes the various designs of the five principal types of rotary drum units and their component parts and details conventional accessories, auxiliaries, media and materials of construction. Also included are numerous photos and drawings plus tables of sizes and capacities of each design. Check No. 6799 on the coupon and mail to secure details.

No. 6801—Lime Spreader Brochure

Literature describing the "New Leader" Model L-145 lime spreader is now available from Highway Equipment Co. The brochure contains information about design, performance and specifications of the spreader. For additional details check No. 6801 on the coupon and drop in a mailbox.

No. 7179—Copy Board Handbook

"How to Use Changeable Copy Boards Most Profitably" is the title of a 32-page pocket-size handbook published by Wagner Sign Service, Inc. Subjects in the handbook include advantages of using copy boards as a merchandising tool, storage of letters, planning and writing copy, applying copy to the board and changing copy. A list of 678 slogans is included in the book. Check No. 7179 on the coupon and mail it to secure details.

No. 7129—Pneumatic Conveyor Bulletin

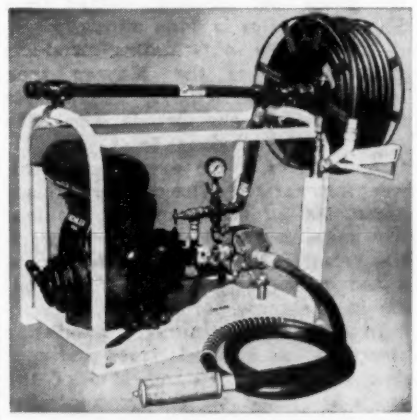
A bulletin describing the Robinson Aire-Probe conveyor for handling fine, granular and dry pulverized materials pneumatically has been released by the Robinson Air-Activated Conveyor Systems division of Morse Boulger Destructor Co. The unit can be either portable or built in, and it can pick up its load from a pile on the floor or ground or can be hooked up permanently or temporarily to a loading chute. Bulletin No. 401, together with supplementary bulletins, will be supplied by checking No. 7129 on the coupon and mailing it to Croplife.

No. 7174—Industrial Fan Bulletin

Bulletin No. I-585 issued by the Day Co. describes the line of Day industrial fans. Construction features, applications, fan arrangements and selection information are described in the 16-page booklet. Temperature and altitude selection data, capacity tables, dimensions, special arrangements and special types of fans are listed. The fans are manufactured in a variety of sizes with capacities ranging from 1,000 to 30,000 CFM and static pressures from 2 to 15 in. Check No. 7174 on the coupon and mail it to secure a free copy of the bulletin.

No. 7158—Grain Fumigant Pump

A pump-engine unit designed especially for the application of heavier-than-air grain fumigant materials



in flat or round storage buildings is being manufactured by the Tryco Manufacturing Co., Inc., and is being marketed by the Seedburo Equipment Co. The high-volume, vane type pump of the new model F-100 delivers capacities up to 19 gal. per minute, and is equipped with special packing that will withstand the penetrating action of grain fumigants. For more details check coupon No. 7158 and mail to this publication.

No. 7131—Flexible Loader

The Flex-Bend loader, manufactured by R. T. Sheehan Co. is described in a bulletin released by the company. Included in the loading unit are a power car, belt drive and stacker cars and as many center cars as required to make the desired length. Car dimensions are: power car, 36 in.; belt drive car, 36 in.; center car, 18 in., and stacker car, 96 in. It has four drive units, using three-phase, 220 or 440-volt power supply. Conveyor belts are 12 in. or 18 in. wide and they travel 36 in. above the floor at a speed of 120 ft. per minute. The 12-in. belt bends horizontally on a 5-ft. inside radius and the 18-in. belt on a 6-ft. inside radius. The stacker boom will swing 180° and has an adjustable delivery height of from 18 in. to 72 in. and a belt speed of 400 ft. per minute to facilitate stacking. The bulletin can be secured by checking No. 7131 on the coupon and mailing it to Croplife.

No. 6793—Pipe

"Fibercast" line pipe and well tubing are now being produced in 4½ in. O.D. size, according to an announcement by the Fibercast Corp. "Fibercast" is a non-corrosive pipe made from thermosetting reinforced epoxy resins, producing a pipe that takes high operating pressures and temperatures, yet being 4⅓ times lighter than steel, the company claims. Its officials state: "After several years of extensive and vigorous field tests, Fibercast was introduced in 1953 in sizes of 2⅜ in., 2⅞ in. and 3½ in. Its successful applications in the petroleum, chemical, paper and fertilizer industries—particularly where severe corrosive conditions exist—brought about the demand for the larger 4½-in. size." Secure details by checking No. 6793 on the coupon and mailing it to Croplife.

No. 7181—Steel Buildings in Color

Complete details about a pre-engineered steel building in color, using a new vinyl-aluminum protective coating, are contained in a brochure entitled "Stran-Steel Buildings in Factory-Applied Stran-Satin Color." Buildings are being offered in color coatings of blue, green, bronze, rose gray and white, as well as in the standard metal finish. The brochure may be secured by checking No. 7181 on the coupon and mailing it to this publication.

No. 6796—Rubber-Lined Tanks

Ranging in size from 55 gal. up to 12,000 gal., rubber-lined steel tanks are now available in 15 different stock sizes for quick delivery to fertilizer users. Abrasion & Corrosion Engineering Co.—fabricators of rubber-lined steel equipment for agriculture and industry—specializes in producing fertilizer tanks of all types, including applicator tanks, skid-type nurse tanks, and storage tanks. For tank types and sizes not included in their regular stock, A & C is geared to provide custom fabrication to required specifications, with delivery to any location. Check No. 6796 on the coupon and mail to secure details.

No. 6800—Movie on Food and Fiber

A film on agriculture entitled "Keep America Growing . . . Quality Food," a companion to the film "Keep America Growing . . . Quality Fruit," is being released by California Spray-Chemical Corp. The 16mm color film, which was in production for three years, was shot by Everett L. Ingraham, agricultural movie photographer. It is a report on American agriculture and shows how growers and technical field men team up to meet the growing demand for top-quality, disease- and insect-free produce. Secure details by checking No. 6800 and mailing to Croplife.

No. 7124—Batching Scale

A constant feed-batching scale which utilizes an electronic closed circuit control has been announced by Thayer Scale Co. The company announcement said the electronic control provides dynamic accuracies without a dead spot and claims final accuracies of 0.1% for wet or dry materials being fed at rates of from 5 lb. to 5 tons per hour. No mechanical parts subject to wear are found in the control system. The closed loop system will maintain constant speed

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

Send me information on the items marked:

- ☐ No. 6791—Fertilizer Bagging
- ☐ No. 6792—Adjuvant
- ☐ No. 6793—Pipe
- ☐ No. 6794—Vermiculite
- ☐ No. 6796—Rubber-lined Tanks
- ☐ No. 6798—Bag Design
- ☐ No. 6799—Drum Filter
- ☐ No. 6800—Food, Fiber Movie
- ☐ No. 6801—Lime Spreader
- ☐ No. 6802—Seed Disinfectant
- ☐ No. 7116—Hydraulic Unit
- ☐ No. 7124—Batching Scale
- ☐ No. 7125—Vibratory Feeder
- ☐ No. 7126—Valve Bag Packer
- ☐ No. 7129—Pneumatic Conveyor
- ☐ No. 7131—Flexible Loader
- ☐ No. 7158—Fumigant Pump
- ☐ No. 7174—Industrial Fan
- ☐ No. 7179—Copy Board
- ☐ No. 7181—Steel Buildings

(PLEASE PRINT OR TYPE)

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

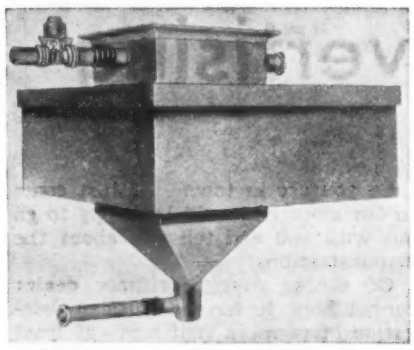
BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept. Minneapolis 1, Minn.



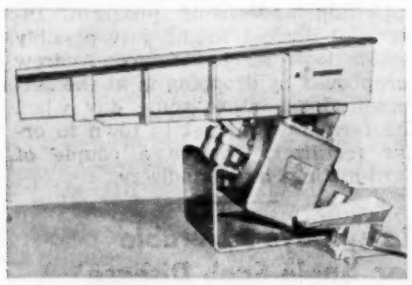
control over a long period of time, the announcement said. Feeders are available to handle viscous or lumpy material, and by substituting a controlled orifice valve for the dry feeder, liquids can be weighed. For more information, check No. 7124 on the coupon and mail it to Croplife.

No. 6802—Seed Disinfectant

A liquid suspension of thiram, for slurry treatment of seed and for use as a paint or spray repellent against rodents, rabbits, deer and birds, has been developed by the DuPont Co. Called "Arasan" 42-S seed disinfectant and protectant, the company states it is the first commercial liquid suspension of thiram and the development marks a major accomplishment in company history. For further details, check No. 6802 on the coupon and mail.

No. 7125—Vibratory Feeder

A new vibratory feeder with capacity rated at 10 tons per hour has been added to the Eriez Manufacturing Co. line of Hi-Vi feeders. The unit is designed to handle medium to heavy feeding to batch weighing scale, hop-



pers, processing mills, pulverizers, dryers, furnaces, belt conveyors, and the like. Seven standard trays are available in regular 16-ga. mild steel or 16 ga. Type 304 stainless steel. The units incorporate the Eriez electro-permanent magnetic drive which requires no rectifier, and they can be wired into available AC power. Full details on the new unit can be had by checking No. 7125 on the coupon and mailing it to Croplife.

No. 7126—Valve Bag Packer

E. D. Coddington Mfg. Co. has released information on its Air-Pac packer which fills standard valve bags of from 20 lb. to 100-lb. capacity. A built-in scale provides close weight control and shuts off packer automatically when the desired weight is reached. A company statement said the machine uses the improved fluidizing air principle of conveying material into the bag. For more information, check No. 7126 on the coupon and mail it Croplife.

No. 6794—Vermiculite Folders

Applications and chemical and physical properties of vermiculite are presented in booklets issued recently by the Zonolite Co. The product's applications as a carrier for agricultural chemicals — insecticides, fungicides, weedicides—and as a conditioner for fertilizer are described. Contents of the booklets include also vermiculite's general characteristics, particle sizes, chemical composition, pH and buffering capacity and many other similar subjects. A complete listing of uses in modern industry is also included. Check No. 6794 on the coupon and mail it to Croplife to secure the booklets.

No. 6798—Fertilizer Bag Design

The Pelham Phosphate Co. recently adopted a new package design for its complete line of fertilizer products. Two packages, illustrating both the old and new designs, are shown here. The new package design shown at the right was created by Union

Bag-Camp Paper Corp. The more liberal use of color gives the new package better attention value and impact. In addition, the new design gives product and analysis information on both ends of the bag as well as in the gussets. Secure details by checking No. 6798 on the coupon.

No. 6791—Fertilizer Bagging, Shipping

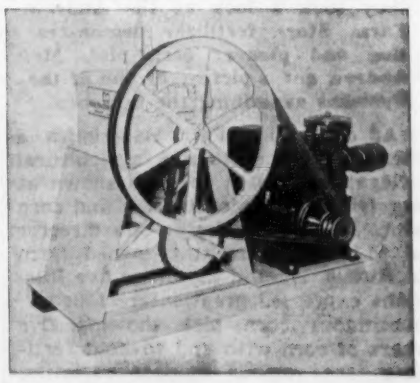
A new bulletin covering fertilizer bagging and shipping equipment has been prepared by the K. E. Savage Co. The bulletin explains and illustrates a shipping mill for bagging large volumes of fertilizer, a sewing machine stand, horizontal and inclined belt conveyors, truck loading conveyors, and industrial design information. The bulletin may be secured by checking No. 6791 on the coupon and mailing it to Croplife.

No. 6792—Adjuvant Activity

A leaflet titled "Adjuvant Activity in the Agricultural Chemical Field" has been prepared by Colloidal Products Corp. The leaflet describes Kelthane (Colloidal X-77—Colloidal Z-1). Results of field investigations are presented in the leaflet. Secure it by checking No. 6792 on the coupon and mailing it to Croplife.

No. 7116—"2-in-1" Hydraulic Unit

M&W Tractor Products has announced production of a portable combination speed jack and hydraulic control. The hydraulic unit with 15 ft. of high pressure hose will dump most wagon loads in less than a minute. Speed reduction for elevating and other uses is provided by a roller chain-sprocket unit delivering 3.5 to 1 reduction. Skid-mounted models are available for gasoline engine (5 to 7½ h.p.), electric motor (3 h.p.) or tractor PTO power application. The hydraulic pump will deliver 2,500 lb. pressure, adequate to raise 100 to



150-bu. grainloads. A positive, three-position valve controls raising, holding and lowering. Hydraulic fluid reservoir capacity is 15 qt. For more information and literature, check No. 7116 on the coupon and mail it to Croplife.

Sell More Than Just Fertilizer

By AL P. NELSON
Croplife Special Writer

There are many merchants throughout the country that are labeled "fertilizer" dealers. However, not all of them sell the same thing, even though all may stock commercial fertilizer in their warehouses.

Some dealers sell just "fertilizer." Other dealers sell "price." There are also dealers who look on fertilizer as a "leader" because they say, "after you lop off your discounts to meet competition" there is nothing left from a small margin.

Then there are the progressive fertilizer dealers who sell something additional to the product. One Wisconsin dealer says he is more interested in selling the farmer a "crop" than "just fertilizer." When a person stops to consider this angle it is mighty important. That's what the farmer is interested in—a crop.

One very progressive Iowa dealer met his price discount problem by keeping the price of his fertilizer at the same level for three years running. This is what farmers in his area like. When people asked the dealer how he could do this, he said, "Well, prices of just about everything have gone up in the last three years, but I haven't raised my fertilizer prices. I don't give discounts, but you pay the same price for fertilizer here today as you did three years ago. That way both of us come out all right over a three year period."

Some progressive dealers are also selling the results obtained from using the proper amounts of the right analysis fertilizer. The farmer is interested in "results." That's the only valid excuse he has to justify the buying of fertilizer. Therefore the dealer who uses "results" as a sales approach is selling something in addition to the fertilizer itself.

If you look at the advertising of many fertilizer dealers today you get the idea that fertilizer is fertilizer, and that if Dealer A cuts price $5 per ton, Dealer B ought to do the same to meet such competition. But what of the analysis? And how about the difference between cured and uncured fertilizer? One Iowa farmer left a cooperative farm group to which he belonged, because the group delivered green fertilizer to him in the spring, when he had placed his order in January!

How about the farmer who buys fertilizer for his corn or other land on "guess." In many states dealers say that less than 20% of the farmers they know have soil tested. Many of the farmers who do not have soil tested, buy and use commercial fertilizer. How do they know they are buying the right grades which are best for their soils?

The wise fertilizer dealer can and should get away from the idea of selling price as price. Most certainly there are seasonal discounts and cash discounts which many dealers offer. Many businessmen in other fields also use such regular discounts, and most fertilizer dealers would not wish to eliminate them entirely.

However, the idea is to sell the PRODUCT and what it can do for the farmer in the way of producing more profitable crops. If this is done the price angle more or less takes care of itself.

The type of fertilizer which a farmer needs for his land should be based upon requirements. Soil tests can establish such requirements quite closely. Once this soil test is completed, then whatever fertilizer the farmer buys—even below recommendations—is directed properly toward profitable operation. But if the mistaken farmer dumps 10-10-10 or some analysis fertilizer on his land in "guess" quantities, he may not be getting the most returns for his fertilizer dollar. It would not be proper to say such a farmer is wasting part of his fertilizer dollar; let us just say he is spending more fertilizer dollars prematurely. He is adding to his overhead for the current year.

The fact that for every $1 a farmer invests in fertilizer he stands to get from $2 to $4 crop return is pretty well established in most sections of the country. But this $1 must be wisely invested in land that needs the fertilizer in amounts recommended through a soil test.

Dealers might as well face it—an astonishing percentage of farmers (perhaps more than 50%) do not have enough knowledge of proper fertilization to buy fertilizer intelligently. They rely on the dealer. And if the dealer doesn't take the farmer's interest to heart such as recommending a soil test, then the farmer is spending his money in a wasteful manner.

With the rise of high analysis fertilizer throughout the nation, there is more need for good dealers to "spread" the word about it and its uses, as well as to "spread" the fertilizer.

The dealer who works scientifically with the farmer in his fertilizer program is going to find himself in a fine position competition-wise. This program involves a soil test, a crop history, previous fertilization records, perhaps liming and application of trace elements (especially in low land), check plots, and crop records year to year.

Set up such a program for your busy farm customer, keep the records yourself and show them to him regularly to let him see that he is progressing very definitely, and then you'll really be "educating him in modern fertilization practices, and selling him on future programs."

Remember when some farmers thought that the application of about 50 lb. of average analysis fertilizer per acre was sufficient and regarded as a heavy application? Today most farmers begin fertilizer applications at from 150 lb. and up. Education, practices and habit, have "upped" the quantities used on the average farm, and there still is a long way to go.

In some sections of the country the farmer spends $8 per acre for fertilizer. In other sections he spends up to $20 per acre. The end is not yet in sight. It all depends upon the sales and educational program of fertilizer dealers in various states.

How good a sales job are you doing? How good a sales job are you willing to do? Are you willing to go to all the extra work of "sparkplugging" more soil tests, more educational meetings and more record keeping on land and crop histories? Are you willing to follow up with your sales promotions? Are you willing to tell the farmer in "layman's" language the latest findings in the fertilizer field?

An Iowa fertilizer dealer sold a farmer on fall plowdown fertilizer through use of newspaper clippings. He showed him one where a midwest college experiment station said tests proved that in many localities fall plowdown fertilizer yields more crops than spring fertilizer disced in on plowed ground.

A wealth of wonderful information about the value of fertilizer is pouring out of college experimental farms and from fertilizer manufacturers. Much of it is published in newspapers and farm magazines. Some farmers read about these fertilizer findings, but many are just too busy to do so.

And when they read it, some of them forget the information. But when John Jones, the fertilizer dealer, talks to the farmer about these findings, maybe even shows the clip-

(Turn to SELL MORE, page 15)

Fertilizer Store Analyzes Its Advertising

By Al P. Nelson
Croplife Special Writer

EDITOR'S NOTE: This is another in a series of articles on advertising methods used by various retail fertilizer dealers.

How can a fertilizer dealer attract attention to his newspaper advertising and turn much of this attention into extra sales?

This is a problem which perplexes many a dealer, including those who advertise occasionally, and also those who advertise consistently on a yearly budget basis.

Jim Andrew, owner of Andrew Farm Store, Jefferson, Iowa, and his general manager, Ken Kinsman, have been using some very effective advertising ever since the company started in business in 1947 in that excellent agricultural area of Iowa.

Mr. Andrew and Mr. Kinsman have set up their advertising and sales promotion work in a thorough manner. Their followup work on such advertising is also outstanding.

First of all, these men have three large scrapbooks which contain an "advertising history of the company." These scrapbooks include almost every newspaper ad and direct mail ad which has appeared under the Andrew Farm Store name. The ads and letters are dated, so that the two men can spot instantly the date each was published or put into the mail. Notations like this, of course, are very helpful in planning future advertising. Some ads, or part of the copy, can be used year after year, sometimes with adaptations.

Mr. Andrew and Mr. Kinsman fashion their advertising policy so that there will be legitimate variety in copy and picture appeal to make fertilizer ad copy read frequently and thoroughly. Therefore, they have tested advertising appeal and know which appeals work in their area. Some of the details of these appeals follow.

Mr. Andrew and Mr. Kinsman have published a number of advertisements which, in picture and words, tell interesting bits of local farm history.

The firm owns a camera and both men take turns in using this camera to take pictures, some of which can be used in newspaper and other advertising.

For instance, in 1953 they began a farm history series of ads and showed a picture of farmers P. B. Smith and J. Paul Wells talking together over a couple of bags of fertilizer.

The headline of the ad read, "I used a fertilizer attachment 35 years ago," said Mr. Smith.

The copy then went on to say, "J. Paul Wells, right, listens to the experiences of P. B. Smith, Jefferson, who was probably the first user of a planter attachment fertilizer in Greene County.

"Back in 1917 Mr. Smith visited an experimental fertilizer plot conducted by Iowa State College on the Cavanaugh farms south of Rippey. In the following spring of 1918, P. B., in partnership with the late W. W. Price, Franklin township, purchased a Sears & Roebuck fertilizer attachment for their horse drawn, 2-row planter. Their fertilizer was a low analysis, like 2-6-3.

"Smith's field yielded 70 bu. corn which was a high yield considering the ground and season. P. B. says, 'We felt that we very definitely benefited from the use of this fertilizer. I am still using fertilizer on my farms.'

"Among other early users of fertilizer that we have heard of were Henry Stevens, Arthur Brown, Albert and Ed Monthei, Ross Amsden, Harry Turner, Charles Maryin and Henry Archinal. If you know of any other fertilizer pioneers in Greene County we would enjoy hearing about them."

Local names and users are very important and the two men make full use of them in these farm history ads. Perhaps other fertilizer dealers can use a similar series, they suggested.

In another farm history ad, Andrew Farm Store showed a picture taken in 1930 of a railroad car of limestone dumped along the right of way near the customer's farm. The copy said that 25 to 30 years ago the use of limestone was just starting in that county. In 1928 twenty farmers used about 320 tons of limestone and seven farmers used seven tons of fertilizer. The ad copy estimated that in Greene County probably between 5,000 to 6,000 tons of fertilizer were used in 1953.

One other Andrew Farm Store farm history ad showed a picture taken 25 to 30 years ago by a local photographer. It was a scene of loading wool into railroad cars during the annual Jefferson Wool Day. Farmers used touring cars and Model-T pickup trucks to bring the wool in.

The ad copy described the gathering and shipping of wool in these areas and it made many an old timer nostalgic.

In every farm community there are old photos of farm scenes and history available. Fertilizer dealers can work up a farm history ad series and tie it in with the fertilizer industry and its progress and benefits to farmers. Such ads, as Andrew Farm Store management has discovered, have high readership value. Ads like this, too, make a dealer's advertising stand out from that of his competitors.

Using the camera in connection with the advertising has proven very valuable to the men. They published two pictures in an effective sprayer ad. One picture showed a man working with a scythe cutting weeds. The adjacent picture showed a man using a modern hand sprayer.

The headline for this picture read "Lay Down That Scythe . . . and Get a Sprayer."

Copy went on "Scything weeds is as old fashioned as hoeing corn. Make weed control easier on yourself and do a better job by spraying your weeds with 2,4-D spray. Use a hand sprayer, or if you have lots of fence rows and weed patches, get one of the low cost power takeoff driven sprayers which we sell.

"Remember early spraying of weeds is the key to best results. Give the bluegrass a chance to fill in where the weeds are and you'll have less weeds to fight next year . . ."

The firm has also used many pictures of corn growing on fertilized and unfertilized strips, with the headline reading, "Fertilizer Made This Difference." In numerous instances the farmer owning the land was in the picture. Some pictures showed the corn in the growing stage. Other pictures showed the ear corn from fertilized and unfertilized strips in separate wire baskets with acreage yields noted on signs. Specific advertising like this has made farmers cognizant of fertilizer's contributions to crop gains in the Jefferson area. It has also brought more farmers to Andrew Farm Store to buy fertilizer.

Many merchants have used the advertising reminder "60 Days Until Christmas. Buy Now." Well, Mr. Andrew and Mr. Kinsman used this idea one year with fertilizer.

Copy in one ad said, "60 Days! You have 60 days or less to secure your supply of fertilizer for application on oats and seedings. Place your order now."

Another ad read "29 Days Left! Less than a month remains until April 1 and oats seeding time. Do you have fertilizer ordered for your oats?"

When the firm took on anhydrous ammonia storage and sales, large ads were published showing the application of this kind of fertilizer. Several years later when bulk storage for dry fertilizer was arranged, many ads showed this service.

The firm has also published numerous ads in which pictures of their custom applicators appear in farm fields. Practically all pictures of such events were taken by the Andrew Farm Store staff.

The fertilizer firm has also published ads explaining to farmers that by purchasing feed and fertilizer supplies at the right time they can deduct them from their current income tax returns and often save money. The Christmas ad published annually by the store usually shows a picture of Mr. Andrew, Ken Kinsman and the employees with the words "Merry Christmas from All of Us."

Several years ago, the two startled the Jefferson area by publishing fertilizer ads containing a little cheesecake. They secured a couple of photogenic farm girls as models, posed them with corn in fields, and also with harvested corn and took pictures of them. The girls were dressed in bathing suits and when the photos appeared in the Andrew Farm Store ads, it is reported that farm grandpas even wiped off gold rimmed glasses for a second look.

One picture showed a farm girl posed alongside a fertilizer mixer in the Andrew bulk blending fertilizer plant. The headline of the ad said, "Like Mixing a Cake."

The copy said, "Our electric driven fertilizer mixer uniformly blends all of the fertilizer raw ingredients just like a good cook thoroughly mixes a cake. Even when you mix cement a thorough and uniform mix is required.

"When fertilizer is spread at 200 lb. per acre, this means that 1/13th of an ounce of fertilizer goes to each square foot of ground. So, if the nitrogen, phosphate and potash aren't mixed accurately you will have a big deviation when it is spread.

"For this reason it is extremely doubtful if scoop shovel mixing in a truck or wagon box will give you a uniform product which can accurately spread at 1/13th of an ounce per square foot . . ."

In 1955 when a Russian farm delegation visited the Midwest, they took a look at the Andrew Farm Store fertilizer demonstration and pioneer corn plot. Mr. Andrew got a picture of one of the Russians examining the tall corn.

Ad copy said, "Petri Babmindra, a member of the Russian agricultural delegation visiting Iowa, is shown at our fertilizer demonstration and corn plot, Mr. Babmindra is the director of a 115,000 acre state-owned farm in Russia. He and the other five Russians expressed great interest in our continuous corn plot showing five years of corn with and without fertilizer, the various Pioneer varieties, the anhydrous ammonia nitrogen plant and our facilities for storing and mixing bulk fertilizer.

"The Russians traveled over 9,617 miles to visit this plot so since the trip will be much shorter for you, please feel free to look it over anytime you are in town . . . Just come to our store and we'll be happy to go out with you and tell you about the demonstrations."

Of course every fertilizer dealer cannot hope to have a Russian delegation of farmers visit him—at least not voluntarily—but there are other farm people who can be invited to visit your facilities. These can be local farmers who are your customers. Rural school teachers and their classes might be interested, too, if you invite them.

When the Andrew Farm Store celebrated its tenth anniversary on Sept. 10, 1957, the management published a full page advertisement in a local newspaper. The ad was filled with pictures of interesting, past promotional events, and there were also some cheesecake pictures of farm girls posing with corn crops. The ad also contained the names of people who have been employed by the fertilizer firm over a period of ten years.

The ad attracted much attention. One picture showed a giant corn borer which was used in an American Legion Parade in 1950. A number of citizens were inside the big borer, with only their legs showing. James Andrew was one of those patriotic citizens. The giant corn borer was seen by many farmers and emphasized the danger this insect does to corn crops.

It can easily be seen from the ads quoted in this article that Mr. Andrew and Mr. Kinsman have a varied, appealing advertising program. Interested dealers might just possibly get a look at the famed Andrew scrapbooks by dropping in at the Jefferson, Iowa, store some day when the farmers can't get to town to order fertilizer. They're a couple of hard-hitting merchandisers.

Rainy Days Favorable For Apple Scab Disease

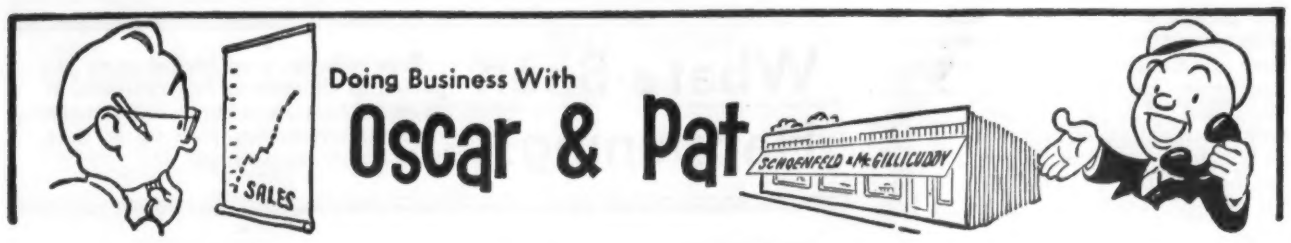
AMHERST, MASS.—Apple Scab will spread from leaves and infect fruit if fruit remains wet 28 hours or longer at this time of year. Black Rot and other fruit rots of apple can be prevented by keeping a film of fungicide on the fruit.

Rainy weather, such as we are having, favors brown rot of peaches as they approach ripening. Diseases of vegetables develop when vegetables remain wet 8 or 10 hours. Spray frequently enough to keep new growth covered or to replace sprays washed off by rain.

This weather is favorable for apple maggot fly emergence and also favorable for a long life and egg laying period for individual flies. Codling moth second-brood entries are now reported from both early and late orchards. Second-brood leafroller is getting started. This could be a critical week (Aug. 1) on early and midseason varieties if spray deposit is too thin or insect activity is not watched closely.

The lower temperatures of the past week have slowed down both corn borer and earworm. However, sweet corn growers should be on the alert for the first signs or reports of earworm egg laying or young worms in silks. Once these are found we can be sure that each successive planting will have more worms.

We are entering the critical season for controlling aphids, worms and loopers on cole crops. Regular applications should be made to lower surfaces to kill them while young or few in number. To avoid residues, check labels on all materials before using. Plow under all plant refuse immediately after harvest.—E. H. Wheeler and C. J. Gilgut.



Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

It was one of those early fall downpours where the rain begins early in the morning and continues steadily all day. Then it continues for the night and through the next day. By that time townspeople and farmers alike are resigned to a three day rain, something which very seldom occurs in many states during the summer. Summer rains are violent, with lightning thunder and flash floods, washouts and muddy fields. Fall rains are slow and steady, with the thirsty soil, dry after yielding so many nutrients drinking up vast quantities of refreshing water.

Rainy days were hard on Oscar and Pat, for their desks were back to back which meant that the partners faced each other. Here they could look at one another frequently, and did so, sometimes accidentally. Each could see the silent criticism in the other's eyes, for the partners were not exactly in love with each other. However, so long as the business remained solvent, so long as the partners got their weekly paychecks, and declared a dividend annually, they decided to remain in the same business. Each, however, often strained in the harness. Each wished many a time he would dare to go into business for himself, but a sense of safety held them in partnership.

Suddenly Pat looked up from his littered desk where he had been browsing through some agricultural college releases and farm magazines.

"Oscar," he said, "we have been selling a lot of fertilizer this fall. I'll bet we sold more than last year for the fall campaign to date. Will you look it up?"

Oscar bit his lips. He did not like to be disturbed in his work and asked to do something different. He wanted to finish one thing at a time.

"Ach, you haf to know right away?" he frowned. "Can't you wait until tomorrow?"

"No, I want to know now," Pat said impulsively. "I've got an idea I want to check on. If you are too busy give me the books and I'll look it up. It's raining too hard for me to go out and sell today."

"Or even collect?" Oscar asked, holding up a long list.

"Oh, sure," Pat said. "The time to collect is on a bright sunny day when farmers' spirits are up, not on a day when it's dark and grey and raining like this."

So Oscar began to thumb through the books. The very thought of Pat monkeying with the books gave him the creeps. Oscar was neat with figures, Pat was not. Sometimes at night when Pat was alone in the store he'd look for the books, find them and make pencil notations on certain entries. This, Oscar thought, was terrible.

So Pat now sat with his long legs on his desk, scratching the back of Ann Hydrous, the Maltese cat who sat on the end of his desk purring contentedly. Outside the rain poured down, making a steady, shut-in sound on the roof.

"Ach, we are a little bit aheadt of last year so far," Oscar said abruptly, closing the book.

"How much?"

Oscar frowned. "Ach, you haf to know that, too?"

"Sure."

Again Oscar opened the book and did some figuring. "It is about 19%."

"Holy Mither!" cried Pat pulling his long legs off the desk and letting them clump so hard on the floor that Ann Hydrous leaped to the top of the safe from the desk. "Why that's wonderful! It means that our promotional campaign on fall fertilization is paying off, Oscar. It means that our soil testing week, our country fair booth and our fertilizer vehicle parade, including the 10 farmers pulling spray machines and anhydrous applicators whipped up interest and got more sales."

"Ach, it is not a success," Oscar said. "If you figure that lots of those that bought didn't pay yet, then the increase is only 3 or 4%. And we spendt more for advertising than last year."

"Oh, you can't figure like that," Pat protested. "Lots of those fellows will pay at the end of 30 days. We gave them a 30 day cash discount price."

"They should not get a discount unless they pay spot cash," Oscar grumbled. "You are always too easy with them. All you think is to make the sale. You think of us secondt. I don't like that."

"Oh, you are too cautious," Pat chided. "A 19% increase in fall sales. How do you like that?"

Oscar's eyes narrowed. "Maybe we got a 19% increase in sales," he snapped, "but we got 100% increase in delinquent accounts. Look, last year I could get the old accounts on one sheet of paper, now it takes two. We gain 19% and lose 100%. Ach, we are behindt, not aheadt!"

Pat sighed. "That's not fair, Oscar. You know as well as I do lots of those farmers will pay. And next week I'm going out to collect. I really am. I'll whack down that list."

"Talk is cheap," Oscar said brutally. "I don't talk as much as you do."

"This time I mean it. I'll collect," Pat said briskly. "But until it stops raining, I'm gonna work on a new idea. It'll sell more fertilizer too."

"Will it cost anything?"

Pat sighed patiently. "Not much. Just a little. I'll have to have some cardboard signs, but my wife can paint them."

"Ach, we got signs all over the place and we got billboards." Oscar protested. "Farmers get dizzy trying to read so many. Take down some of the signs. Don't put up any more."

"Some people like to read signs, Oscar. Some people like to learn more. They are not all one track minds. This idea is a honey."

"Himmel!" cried Oscar, "why can't we just sit and catch up once in a while. Why do we always haf to be lookin' for something new and expensive?"

"Because we have to stay competitive, that's why," Pat replied eagerly. "We have to keep customers noticing us and saying we are on the ball and are a good firm to deal with. Now look at this. I've picked up a plan to hit the farmers with the idea of fall fertilization from another angle."

Oscar looked scornful. He said nothing, but his eyes spoke plenty.

"I've got a chart in an article which says that crops take a lot of nutrients out of the soil. One hundred bushels of corn take 96 lb. of nitrogen for the grain only. Forty bushels of wheat take 63 lb., and 60 bu. of oats take 40 lb. I'll post signs all around the store and warehouse for farmers to consider the nitrogen lost through this year's crops, nitrogen that needs replacing now. No farmer likes to think his soil is going downhill. He wants it to stay fertile. With some newspaper advertising I'll bet I'll nab some farmers on that nitrogen appeal. Especially when I play up the fact we've got nitrogen in any form and also in dry fertilizer. Now I'll get figures on how much nitrogen other crops grown around here take from the soil. Nitrogen replacement. Nitrogen. Nitrogen. That's gonna be my story. Then when that peters out I'll play up potash and phosphorus and trace elements."

"And, ach, I will play up collections, McGillicuddy," Oscar snapped. "And if you try to sell nitrogen to people that are on those lists I will go oudt and collect myself. I will not let them get by so easily as you do. Ach, mine liver. It hurts."

FARM SERVICE DATA

Extension Station Reports

How tomatoes respond to phosphate fertilizer will depend on at least two principal factors, the soil and the source of the phosphate.

Speaking at a recent meeting of the American Society of Agronomy, John C. Lingle, assistant professor of vegetable crops on the Davis campus of the University of California, said that all kinds of phosphate fertilizer will give about the same results in soils that are not phosphorus deficient. But if there is a small deficiency in the soil, there will be differences in plant growth.

The more water-soluble forms of phosphate are then recommended: 16-20-0 and 11-48-0. They will do the best job of promoting tomato plant growth in phosphorus-deficient soils, although all phosphates will be of some benefit, he said.

Mr. Lingle, who is conducting extensive tomato fertilization trials in California in cooperation with another Davis vegetable researcher, William J. Flocker, based his conclusions on a number of observations: plant growth as determined by total weight at thinning time, yields of tomatoes, and the phosphorus content of plant tissue.

In studying the fertilizers, the researchers used 16-30-0—an old time cheap source—as their basis of comparison. Mr. Lingle said that comparisons among chemicals are urgently needed by the farmer because of the 15 to 20 new phosphate carriers that have come on the market in the last 15 years.

"The tremendous development of the chemical industry during the war," Mr. Lingle said, "has made certain materials like nitric acid comparatively cheap. That and other new processes for manufacturing such materials as the phosphoric acids, have changed the fertilization picture in a very short time, although 16-20-0 still appears to be a good choice."

★

Proper fertilization now will help insure vigorous stands of established legume-grass going into the winter, Joe Stritzel, Iowa State College extension agronomist, said, and this will help increase yields next spring.

Mr. Stritzel said some experimental results show that bluegrass yields have been increased as much as ½ ton of dry material per acre from an 80 lb. application of nitrogen.

Bromegrass and orchardgrass yields have been increased about one ton per acre with the same treatment. Bromegrass seed yields have increased as much as 600 lb. per acre, he added.

Proper fertilization also tends to reduce winter killing in legume-grass stands, Mr. Stritzel said. This effect is especially important for new seedings which were not fertilized this past spring. It's likewise important for established legume stands which have not been fertilized since they were seeded and are deficient in nutrients.

Mr. Stritzel said basic principles to keep in mind when fertilizing legumes and grasses are: the nitrogen stimulates the grasses, the phosphate and potash stimulate the legumes, and in mixed meadow stands, emphasize that nutrient favoring the species you desire most.

Farmers should fertilize on the basis of good soil tests, Mr. Stritzel advised. If farmers don't have a soil test report, he suggested, they should apply 30 to 50 lb. of straight nitrogen on all grasses to be used primarily for forage.

For bromegrass seed fields, 150 to 200 lb. of 15-15-0, or its equivalent, should be applied now. Then 30 to 50 lb. of straight nitrogen should be topdressed next spring.

For legume-grass meadows, Mr. Stritzel recommended a topdressing of 40 to 60 lb. of phosphate from either 0-20-0, 0-45-0 or 0-62-0. In northeast Iowa, potash should be added with the phosphate. A mixed fertilizer such as 200 to 300 lb. of 0-20-20 or 0-20-10 should be used.

★

It pays to put extra nitrogen on corn during a year of high rainfall as well as any other time.

And side-dressing during the growing season is the ideal way to apply the nitrogen, as long as it's done in time, a University of Minnesota soils researcher stated. However, he added, applying in the spring or even the previous fall is still very effective.

Loren E. Ahlrichs, who made the report, based his conclusions on studies conducted in southern Minnesota last summer—a season of unusually high rainfall.

On soils of light, medium and heavy texture, the researcher compared three different times of nitrogen application for corn—as a spring-plow-down, at planting time and as a "side-dress" application during the growing season. In each case, 60 lb. of nitrogen per acre were applied.

Side-dressing gave the best yield increases on both the heavy and light soils, although there was no difference between times of application on medium-textured soils.

The heavy soils in these tests were Webster clay loam, and the fields had been completely water-logged after planting. Yet, side-dressing on these fields increased corn yields by 20 bu. acre, compared to only a 10 bu. increase for applications at plowing and planting time.

★

Phosphate fertilization of lettuce pays big dividends and hastens maturity, according to the California

Fertilizer Assn. This information comes to light through recent work conducted by University of California scientists.

Lettuce fertility trials conducted in Imperial Valley for the past two years under the direction of Dr. O. A. Lorenz indicate production increases of two to four times with proper phosphate application and in one case the difference resulted in a crop which could be harvested versus no crop at all.

In the 1956-57 season, trials conducted in cooperation with La-Brucherie Farms of El Centro revealed the following results.

	Per cent cut
No phosphorus	15.3
160 lb. P_2O_5/acre applied broadcast	64.2
160 lb. P_2O_5/acre banded 3" below seed	61.5

The lettuce in this trial was planted Nov. 5, 1956, harvested March 11, 1957, and all plots received adequate nitrogen. As can be seen the difference between the two types of phosphate application was not significant.

This same season phosphate trials were also conducted at the Meloland Experiment Station, of the University of California with the following results.

Pounds P_2O_5 applied per acre	Yield—per cent cut 1st and 2nd harvests	Total for season	Average weight per harvested head in pounds
0	0	0	0
60	54.3	84.1	1.81
120	67.9	88.3	1.86
180	72.7	87.5	1.84

Again in this trial all plots received adequate nitrogen. The variance in the total cut for the three rates of phosphate was not significant but there were striking differences on the first and second cuts revealing that one of the important effects of phosphate fertilization is to hasten maturity.

During this past 1957-58 season phosphate trials on lettuce were again conducted on the Meloland Station with the following tabulation:

Pounds P_2O_5 applied per acre	Yield—per cent cut 1st and 2nd harvests	Total for season	Average weight per harvested head in pounds
0	13	47	1.79
60	44	75	1.86
120	54	80	1.90

In this trial the lettuce was planted and irrigated on Oct. 15, 1957 and harvested during February, 1958. Fertilizer was applied broadcast and folded into the bed on Oct. 11, 1957. All phosphate rates were combined with nitrogen so that 60 lb. per acre each of ammonic and nitrate nitrogen were applied to all plots. An additional 30 lb. of nitrogen per acre from ammonium nitrate was applied as a side dressing in the shoulder of the bed on Jan. 15, 1958 giving a total nitrogen application of 150 lb. per acre.

The harvest data from this test again points up the fact that adequate phosphate fertilization is necessary in order to realize the maximum benefit that should result from the investment of other fertilizer and cultural costs.

The areas on the experiment station where these trials were conducted have received heavy phosphate applications for the past three years, which illustrates that the total PO_4 content in the soil is not always an accurate indication of that available to the plant and will depend upon the soil type and conditions that prevail in the area.

The large response of lettuce plants to heavy fertilization is especially interesting since lettuce is a crop that removes only small amounts of phosphorus from the soil. In experimental studies it has been shown repeatedly that an acre of lettuce will remove only 15 to 20 lb. of P_2O_5 from the soil, yet the phosphorus application needs to be many times this amount.

The association recommends the local fertilizer supplier as a good source of information concerning the fertilizer requirements of the soils and crops in the area which he serves.

★

Farmers increased their corn yields 26 bu. or more per acre by planting 16,000 to 18,000 plants per acre and adding sufficient fertilizer to feed the crop, according to Charles A. Simkins and Curtis Overdahl, University of Minnesota extension soils specialists.

The two specialists base their statement on results in the 1957 Minnesota extra corn yield contest.

When the stalk population ranged from 14,000 to 16,000 per acre, the use of fertilizer boosted yields by 12½ bu. per acre, Mr. Simkins and Mr. Overdahl report.

And when farmers had less than 12,000 plants per acre, yields increased less than 6 bu. per acre from the use of fertilizer.

KING-SIZED WORM—Residents of Southern Florida could hardly believe their eyes recently upon finding huge worms eating their trees. Alarmed citizens contacted authorities who identified the over-sized pests as larvae of the giant sphinx moth. The worm, measuring more than 6 inches in length, is colored yellow and black. Large as these were, however, they were only about half the size known to have been achieved by this species. The worms, fortunately not widespread, defoliated trees in short order.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

The recent grasshopper control program on ten Western States covered some five million acres, the U.S. Department of Agriculture reported. The effort was reported to have saved many thousands of acres of wheat and other small grain crops from insect damage.

Despite lower price supports for corn and cotton projected for 1959, the fertilizer industry expressed confidence that more acres of these crops will be planted next season.

Anhydrous ammonia sales increased 14% during the first seven months of 1958, the Agricultural Ammonia Institute reported.

Fertilization of wheat lands showed continual increase in past years, the USDA reported in the fifth of its series of articles on fertilizer use by crops and regions of the U.S. A continuing potential for sales was seen.

The American Chemical Society held its 134th meeting in Chicago with the presentation of numerous technical papers on fertilizer production.

Production of superphosphate in the U.S. for the period of July, 1957 to June, 1958, was 5% greater than that of the previous fiscal year, according to figures released by the U.S. Department of Commerce. The greatest gains were recorded in concentrated superphosphate.

The new farm bill will meet its first test in the corn referendum scheduled to be polled in December. In this vote, farmers will decide whether they want acreage allotment controls continued in the corn belt, and put the national price support for corn at the higher of 65% of parity or 90% of the national average market price for the three previous seasons.

Dr. R. T. Allman, president of Bradford Fertilizer & Chemical Co. of Canada, was elected president of the Canadian Fertilizer Assn. at the group's first annual meeting at Murray Bay, Que.

Howard J. Grady was elected executive vice president and a member of the board of directors of California Spray-Chemical Corp. at a recent meeting of the company's board of directors. He has been with the company since 1926.

Estimates for cotton and corn acreages for 1959 were made by the U.S. Department of Agriculture as follows: Cotton, more than 18 million acres, perhaps nearing 20 million acres. Corn will be planted in some 77.5 million acres, the estimate said.

Thomas R. Cox, American Cyanamid Co., was elected chairman of the Northeastern Research and Education Committee at its meeting on Aug. 22.

Production of ammonia in June, 1958, was below that of the same month of 1957, the Bureau of the Census reported. Comparative figures were 336,309 tons in June, 1958, and 348,158 tons the same month of the previous year.

USDA scientists discovered that the southern bean-mosaic virus or its infectious particles move from dead to living plant cells. This opens a new area for research in plant disease control.

A new chief forester for the National Plant Food Institute was named. He is Dr. Laurence C. Walker who took leave from the University of Georgia to take this special assignment.

The National Agricultural Chemicals Assn., through its executive secretary, Lea S. Hitchner, declared in a statement that the industry should not have to bear the cost of setting pesticide residue tolerances by the Food and Drug Administration, since the laws exist for the protection of the public and not for the benefit of pesticide manufacturers.

The Farm Bill, long-debated measure, was passed Aug. 18, awaiting the Presidential signature, considered certain. Despite wide predictions to the contrary, the bill did go through with only minor deviation from its version as passed by the Senate earlier.

The American Phytopathological Society met in Bloomington, Ind., to observe its 50th anniversary. Speakers told of possibilities for wider use of chemotherapeutants in the control of various plant diseases.

Spencer Chemical Co. announced a new line of non-pressure direct application solutions to its nitrogen products. Joe Tuning was named to coordinate the sales of anhydrous ammonia and solutions.

Fertilizer tonnages in California showed a considerable increase in the fiscal year 1957-58. Comparative total figures were 1,123,325 tons for 1957-58 as compared to 1,079,748 tons the previous fiscal year.

Yield estimates for the 1958 crop year were stepped up by the U.S. Department of Agriculture as of Aug. 1. Earlier estimates of crop production went by the board as a new look was taken. New records were set on some crops, and all were above average in volume.

The Canadian Agricultural Chemicals Assn. announced that Hon. Duff Roblin, Premier of Manitoba, will be a guest speaker on its program, along with representatives of manufacturing firms and others in the farm chemical field. The meeting was set for Sept. 15-17.

Conventioneers at the 1958 Beltwide Cotton Mechanization Conference, Brownsville, Texas, were told that the use of herbicides and insecticides can enhance cotton growth and that such use brings added profits to growers by cutting unit costs of production.

That a "somewhat mixed" pattern of pesticide sales has existed throughout the 1958 season was observed by Melvin Goldberg, Pesticide Advisory Service, New York, in an article on Aug. 18. He said that price declines on some pesticides, exports, lack of demand for some products, and tight supply situations on others have made a confused picture.

Gloomicides

Overheard at an office party: "Oh, yes, I like working for him very much. He's a perfect gentleman—all you have to do is slap his face once in a while."

★

The story is told of a great musician who took his orchestra on tour, and during his travels received a note from a well-meaning person in one of his audiences. This is what the note said: "I think it only fair to inform you that the man in your orchestra who blows the instrument that pulls in and out, only played during the brief intervals when you were looking at him."

★

The school orchestra was not playing very well at its first concert. A man in the audience could not quite make out the piece so he asked his neighbor, "Sorry, sir, what's this piece out of?" Came the quick reply, "Out of tune, sir!"

★

"I've just heard about your husband being in the hospital," said the neighbor sympathetically. "What happened?"

"It's his knee," replied the wife. "I found a blonde on it."

★

Two men fell into an argument. "You know something," declared one, "you're nothing but a henpecked nobody!"

"Oh, yeah?" retorted the other. "Well, you wouldn't dare say that if my wife was here."

★

Eight-year-old Suzie was crazy about school, while her six-year-old sister was somewhat less enthusiastic.

"Let's play school," suggested Suzie one day.

"All right," agreed the younger one grudgingly, "but let's play I'm absent."

★

If you gave some people the shirt off your back they'd criticize your taste.

★

They were burying a rather unsavory character who had never been near a place of worship in his life. The services were being conducted by a minister who had never heard of him.

Carried away by the occasion, he poured on praise for the departed man. After ten minutes of describing the late lamented as a father, husband and boss, the widow, whose expression had grown more and more puzzled, nudged her son and whispered:

"Go up there and make sure it's Papa."

★

A minister, returning home late one night from a sick call, noticed one of his parishioners staggering down the street.

"Let me help you to the door," said the minister, guiding the inebriated member of his flock gently home.

At the door the besotted man pleaded with the minister to come into the house with him. But the minister demurred on the grounds that it was too late.

"Pleash, Rev'ren," the man beseeched him. "Jusht for a minute. I want the wife to see who I been out with tonight."

★

A sarcastic English prof at a Texas college, disgusted at the poor spelling of his students, has adopted this new set of grade designations:

"A means Axceptional."

"C means Catisfactory."

"P means Phlunking."

SELL MORE

(Continued from page 11)

ping to him, he is impressed. You and he talk about these findings and maybe you'll wind up getting an order for more fertilizer.

When you talk with the farmer about buying more fertilizer, perhaps in line with soil test recommendations, stress that INVESTMENT feature of the product. Invest $1 in fertilizer and get from $2 to $4 back in bigger crops!

Show the farmer that when he raises livestock he INVESTS also in hogs, poultry, dairy cows and cattle. He must wait months before he gets returns in meat, eggs and milk, but he takes this INVESTING feature for granted. He knows he'll get returns. Thus when he invests in fertilizer, he must wait, too, for his increase.

Use such parallel situations when you talk with the farmer about stepping up his fertilizer program. Don't go to him and try to sell on price alone. If you do, maybe you'll get a small order based on a cut price, but it will be for minimum requirements, because you haven't stressed fertilizing according to soil test recommendations. You pushed price only.

A vast, well trained army of county agents, vocational ag teachers in high school, extension agents, newspaper and farm editors and college experiment stations, is constantly working for the fertilizer dealer. They are trying to get the farmer to use more fertilizer of the right type to boost his yields per acre.

No other industry has such a large, competent volunteer agency working for it. And yet thousands of fertilizer dealers are not fully utilizing the sales and educational findings of this army.

It is not amazing that a large number of county agents and others are deserting official ranks in some states and going into the fertilizer and farm supply business for themselves. They are doing so because they see an opportunity to make a fine profit.

When a county agent goes into the fertilizer business, he usually talks with the farmer in the field on the basis of "what crops are you going to raise this year?" "What did you raise last year?" "Why not get a soil test and see what it says?"

This sort of approach is what wins many farmers. Such an approach shows that the dealer has the customer's interests in mind. County agents are very conscious of the fact that pasture fertilization is just beginning to take hold in some areas and offers a splendid field for more fertilizer application, and an opportunity for the farmer to grow more forage for his livestock and thus lower his feeding costs.

It pays every fertilizer dealer to ask himself several times a year whether he is just selling price, or whether he is first using all those other sales and service angles which inform the customer and make many of them want to buy, because they can see where the buying of fertilizer will be profitable to them.

MANAGER NAMED

HARRISBURG, OREGON — Don Reese has been named manager of Jenks-White Seed Co., Harrisburg, Oregon, replacing Orlo Gillett. Mr. Reese has worked for the firm since 1946 and for several years has been assistant manager. Mr. Gillett, manager since the firm's founding 22 years ago, will remain in charge of shipping in Marion, Linn and Benton counties.

Books on Pesticides

WEEDS—Second Edition (1955)

W. C. Muenscher

Entire book has been revised and reset, with descriptions of seventy weeds added to the original list of five hundred, plus twelve new full-page plates depicting nineteen kinds. Keys and full descriptions provided for identification with detailed illustrations of 331. Types and sources of weeds, their means of reproduction and dissemination, and the amount of damage they inflict on crops. Specific directions for control, with reference to chemical methods of recent discovery $10.00

CHEMICAL BUSINESS HANDBOOK

Dr. John H. Perry

1,300 double column pages, the equivalent of several average books; 700 illustrations, by 124 contributors. Market research data section is 280 pages, business mathematics 200 pages, financial and accounting 142 pages, research and development 150 pages, sales and advertising 92 pages, twenty sections in all. The book deals with chemical management problems and is useful to technical men, engineers and executives, in the chemical and allied fields. Dr. Perry is editor of the Chemical Engineers Handbook, a companion publication $17.00

INSECT PESTS OF FARM, GARDEN and ORCHARD Fifth Edition (1956)

Leonard M. Peairs and Ralph H. Davidson

A standard text for 44 years. Includes insects affecting grasses, grains, cotton, legumes, vegetables, flowers, fruits, stored products, household goods and domestic animals. Contains a new chapter on insecticide formulations, spray mixtures, application equipment, etc. Material on forty new pest species added, including drastic changes in the illustration. 661 pages $8.50

DDT and NEWER PERSISTENT INSECTICIDES

T. F. West and G. A. Campbell

The first and major part of book is devoted to the physical and chemical properties, manufacture, formulation and applications of DDT. The second part deals with other chlorinated hydrocarbons whose insecticidal properties have been discovered recently and compares these new insecticides with DDT. The preparation of aqueous suspensions, solutions, emulsions, and dusts containing DDT, the compatability of DDT with other insecticides, fungicides and additions are covered in detail. Contains dozens of tables on the solubility of DDT in various solvents, the catalytic activity of accessory substances in the presence of DDT, analogues of DDT, the comparative toxicity, hydrolysis and solubility of DDT analogues, the toxicity of DDT for almost all important insects, etc. Many illustrations $8.50

APPLIED ENTOMOLOGY—Fifth Edition

H. T. Fernald and Harold H. Shepard

This text since 1921 has had an outstanding record of usefulness. The Fifth Edition preserves the general organization and coverage, with changes to improve the presentation and to incorporate new knowledge. Contains chapters on anatomy, physiology and development. The economic importance and control of insects are discussed in a general way with much attention to insecticides. The classification of insects is emphasized, with examples drawn from species conspicuous for being very harmful or decidedly beneficial. Specific control measure included for injurious forms. Last chapter considers other pest animals closely related to insects. 388 pages $7.00

DISEASES OF FIELD CROPS—Second Edition (1956)

James G. Dickson, Professor Plant Pathology, University of Wisconsin

Covers the diseases of cereals, grasses, legumes and fiber plants, which are the major food, feed and fiber sources throughout the world. More than 60 diseases incited by viruses, 40 by bacteria and 300 by fungi are listed and discussed in relation to field crop plants. Identification and information basic to its control, with emphasis on the problems of crop rotation, adaptation and the use of disease resistant varieties. This revised edition includes several new diseases, new illustrations and much recent research in the field $9.00

THE GARDENER'S BUG BOOK (1956)

Dr. Cynthia Westcott

The Complete Handbook of Garden Pests and their control. Information, scientifically accurate but easy to read on 1,100 insects, mites and other animal pests that attack trees, shrubs, vines, lawns, flowers, fruits and vegetables in home gardens. Illustrations in full color. Control measures combine the latest in chemical developments with time-honored cultural measures. Helpful to all who serve the general public and to truck farmers and fruit gardeners. 579 pages, cloth bound $7.50

THE CHEMISTRY AND ACTION OF INSECTICIDES

Harold H. Shepard, Entomologist, U.S. Department of Agriculture, formerly Associate Professor of Insect Toxicology, Cornell University.

Treats the chemistry of insecticides, the history of their use, their commercial importance here and abroad, the nature of the major uses, the influence of environment on effectiveness. Materials are arranged according to their chemical relationships. Two chapters relating to organic compounds largely new as insecticides. Illustrative data in form of tables, and a convenient appendix of equivalents arranged for practical use in the field. 504 pages..... $8.00

WEED CONTROL

W. W. Robbins, A. S. Crafts, and R. N. Raynor

A textbook-manual presenting a modern view of the rapidly developing field of chemical weed control. Reports in detail the research on which most modern herbicide usage is based. Weeds, their reproduction, prevention, biological control, chemicals in weed control. Herbicides, foliage contact applications, hormone-like substances, root applications, evaluations of combinations of chemical applications. Weeds of grasslands and turf. Special weed problems, cropped and uncropped areas. Published 1952. 503 pages, 155 illustrations $8.50

INSECT, FUNGUS AND WEED CONTROL

Dr. E. R. de Ong

The information is grouped according to field of application rather than to chemical composition or nomenclature. Chapters on insecticide label, seed disinfectants, herbicides, forest insects and diseases, livestock insects, and the pests found in household and industry. Fumigation of warehouses, residual sprays and preservatives for fruits, vegetables and wood products are covered. An up-to-date guide on pest control with the needs of operators, agricultural and structural specialists carefully considered. Shippers and warehouse personnel will find the book useful..... $10.00

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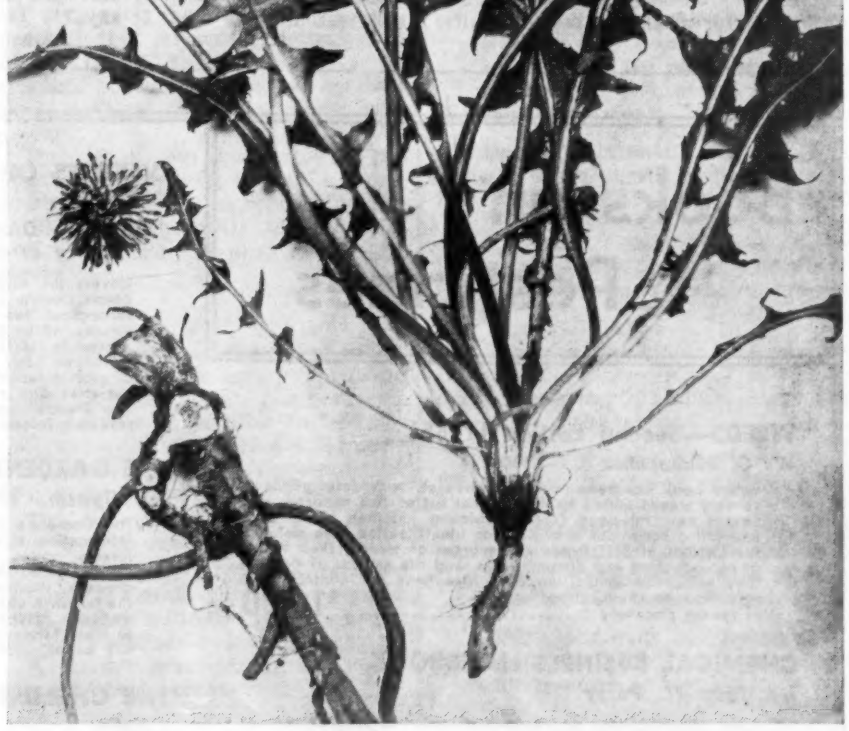
WEED OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



Dandelion

(Taraxacum officinale)

How to Identify

If ever there was a weed with which nearly everyone is acquainted, dandelion should get the vote. The familiar yellow-flowered plant found in lawns, meadows, gardens, roadsides, and waste places is probably the most hated lawn weed of all. The plant consists of a rosette from a taproot and a flower stalk bearing a single head. Leaves are alternate, simple, variously lobed, forming a rosette at the surface of the ground.

Habits of Dandelion

The plant is a perennial, reproducing by seeds. It flowers and seeds March-June, and September to December, in some portions of the country in all months. Dandelion was introduced in the U.S. about 1870 and is now well distributed throughout the states, although with less frequency in the southwest.

Control of Dandelion

This pest is susceptible to a number of herbicidal chemicals which are successful in controlling it. Cultural means of control include application of fertilizer to the lawn to invigorate the grass which will tend to crowd out the weeds. The plant food should be applied in April and again in September.

Illustration of Dandelion through courtesy of U.S. Department of Agriculture.

FARM INCOME

(Continued from page 1)

tilizer industry officials called "daydreaming at USDA."

Subsequently, other USDA officials available to this reporter since last week's issue of Croplife remarked that in the case of wheat acreage any lower level of support still leaves a broad profit margin for well-run economic-sized wheat farms. These officials say that farmers still will be able to make use of such efficient tools as fertilizer materials and pesticidal chemicals since their per unit costs of production are still well below planned government price support levels.

Pressure on credit which would reduce capital inputs in field crops may eventually become effective, but few persons who know farming costs would agree with USDA officials that this impact in credit availability will become effective this coming year.

As far as the fertilizer industry is concerned it is noted that farmer credit for fertilizer materials generally comes from the manufacturer or dealer. As long as the even lowered levels of support now possible are available there is unlikely to be any reluctance of the manufacturer or dealer to continue to make available credit lines to the farmers producing feed crops.

This condition would be found substantially true for farms where there is an immediate outlet for feed grain crops since the prices for livestock, swine and poultry continue at the current profitable levels.

Using the current area breakdown of farm income by USDA it may be seen that the distribution of income improvement for the first eight months of 1958 over the same period for 1957 is general when livestock and products are included in the total income reports for the respective periods.

It may be seen somewhat inappropriate to add the income from livestock and livestock products to the total of field crops where fertilizer and pesticidal chemicals find their largest sales outlet, but nevertheless improvement in livestock income adds to the general tone of the farm community.

Here is the regional breakdown of farm income for the first 8 months of 1957-58 respectively as set forth in the September, 1958, farm income report of USDA:

North Atlantic—$1.4 billion, $1.5 billion; East North Central—$3.2 billion, $3.4 billion; West North Central—$3.8 billion, $4.5 billion; South Atlantic—$1.61 billion, $1.67 billion; South Central—$2.1 billion, $2.5 billion; Western—$2.6 billion, $2.8 billion.

In the North Atlantic Region there is now apparent a larger surplus of potato production in Maine, for example, this year over last on the basis of the crop outlook. However, the Maine estimate of income for all field crops shows an improvement for the first 8 months over last year. While Maine is steadily increasing its farm income from livestock and livestock products, largely in poultry, the field crop income is still the larger share of total Maine farm income.

Offsetting this moderately unfavorable aspect for that state and region alone as influenced by potato prices, are other states of the nation where corn is now being more widely grown for feed purposes. If the new farm bill is made effective for corn this coming year, when it is expected that corn acreage allotments will be eliminated, it will mean that for states which heretofore have been outside the old commercial Corn Belt—or in short in most of the deficit producing areas of the nation—the level of price support for corn will be increased by about 12-14¢ bu. for 1959. Even in the Corn Belt itself the price support level for all corn will be increased from the existing minimum low for the non-compliers by about 4-6¢ bu. in 1959.

It must be remembered that in the old commercial Corn Belt in 1958 USDA reports that less than 15% of all corn produced is eligible for the higher level of price support. This on balance means that even in the old commercial Corn Belt next year under the available provision of the new Farm Act, virtually 85% of corn grown there will be eligible for a higher level of support.

Therefore, from this September, 1958, farm income report of USDA there is strong reason for the agricultural chemical industry to contemplate a comfortable farmer attitude toward expenditures for crop improvement materials.

Promotion Planned for Warfarin Rodenticide

MADISON, WIS. — "Operation 54,000,000" is the theme of the seventh annual Warfarin rodenticide advertising program of the Wisconsin Alumni Research Foundation to appear throughout the fall and winter months in 18 leading farm and rural community publications.

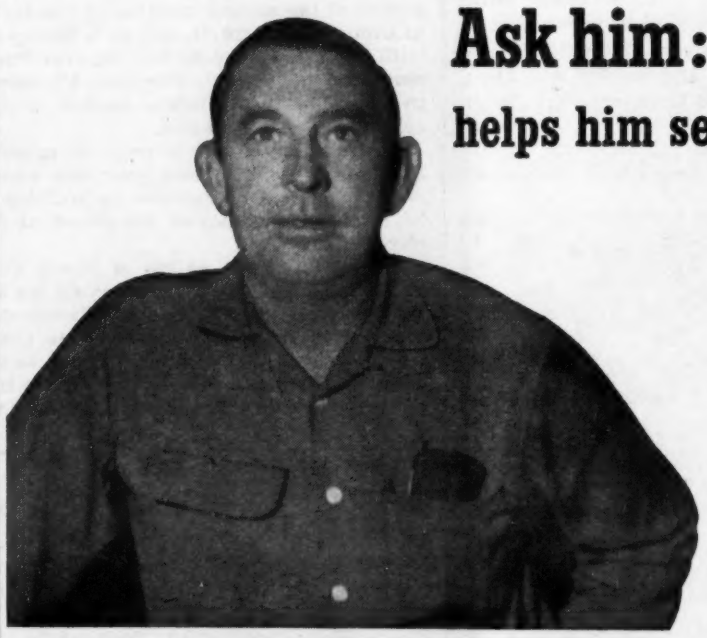
"Over 60,000 tons of Warfarin baits have been used since this effective rodenticide was introduced, but the job of eliminating rats and mice from our farms and cities is still far from done," states Ward Ross, the foundation's managing director. "Our 1958-59 educational advertising program has a fresh new theme, new ads and new publications. It should substantially stimulate the sale of Warfarin baits through retail farm outlets."

Warfarin is an anticoagulant type rodenticide which causes death to rats and mice by internal bleeding. It is formulated by leading rodent bait manufacturers, all of whom clearly display the word Warfarin on their packages.

As an organization not for private profit, the Wisconsin Alumni Research Foundation devotes substantially all royalties under its Warfarin patents to scientific research at the University of Wisconsin.

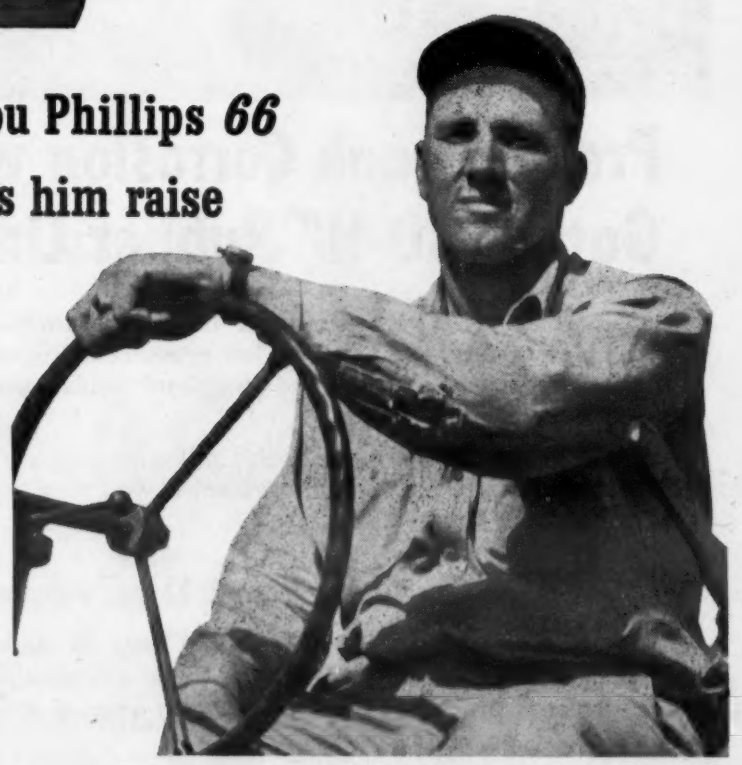
JOIN AIR GROUP

FRESNO, CAL.—Five new California companies have become members of the Agricultural Aircraft Assn. here. They are: Denham Aircraft, Chino, represented by owner Bruce Denham; Warner Crop Dusters, Santa Maria, represented by owner Wayne E. Warner; Crews' Crop Duster, by W. A. Crews of Bakersfield; the Onstutt Dusters, by Ken Onstutt of Yuba City, and Hensley Aviation, by Erwin Hensley of Pixley.



Ask him: he'll tell you Phillips Service helps him sell more fertilizer

Clarence Osterbuhr, president of Anamo Co., Inc., Garden City, Kans., says: "I like to sell Phillips *66* Ammonium Nitrate because it's a first class product. But I also like Phillips service. Not only does my Phillips field man help me in many ways, but I can depend on the full resources of Phillips service, if I need them." Mr. Osterbuhr is just one of many dealers who find that the combination of a top quality product and Phillips service helps them make more sales and greater profits.



Ask him: he'll tell you Phillips *66* Ammonium Nitrate helps him raise better crops

Frank Wise, who farms 960 acres near Dimmitt, Tex., says: "I like the way Phillips *66* Ammonium Nitrate stores and spreads. Nothing discourages a farmer more than to discover fertilizer skips when his crop starts coming on. Phillips *66* Ammonium Nitrate spreads evenly, and gives me a more uniform crop response." Word-of-mouth praise of Phillips *66* Ammonium Nitrate by satisfied users is making new customers for dealers everywhere. You, too, will find Phillips *66* Ammonium Nitrate and Phillips service a profitable combination.

Ask us: Get all the facts about Phillips *66* Service. Call or write:

PHILLIPS PETROLEUM COMPANY

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DENVER, COLO.—*1375 Kearney St.*
DES MOINES, IOWA—*6th Floor, Hubbell Bldg.*
HOUSTON, TEX.—*6910 Fannin Street*
INDIANAPOLIS, IND.—*3839 Meadows Drive*
KANSAS CITY, MO.—*201 E. Armour Blvd.*
MINNEAPOLIS, MINN.—*215 South 11th St.*
NEW YORK, N.Y.—*80 Broadway*
OMAHA, NEB.—*3212 Dodge St.*
PASADENA, CALIF.—*317 North Lake Ave.*
RALEIGH, N. C.—*401 Oberlin Road*
SALT LAKE CITY, UTAH—*68 South Main*
SPOKANE, WASH.—*521 East Sprague*
ST. LOUIS, MO.—*4251 Lindell Blvd.*
TAMPA, FLA.—*3737 Neptune St.*
TULSA, OKLA.—*1708 Utica Square*
WICHITA, KAN.—*501 KFH Building*

USDA Announces Data On Conservation Talks

WASHINGTON — Locations and dates of public hearings to be held in connection with a study of needs for soil and water conservation research facilities have been announced by Ezra Taft Benson, secretary of agriculture. The study is being made at the request of the Senate Committee on Agricultural Appropriations.

Hearings will be held on the following schedule:

Oct. 14—Rapid City, S.D.
Oct. 15—Salt Lake City, Utah
Oct. 16—Boise, Idaho
Oct. 24—Charleston, S.C.
Oct. 28—Sacramento, Cal.
Oct. 30—Phoenix, Ariz.
Oct. 31—Amarillo, Texas
Nov. 6—Harrisburg, Pa.
Nov. 7—Boston, Mass.
Nov. 14—Washington, D.C.
Nov. 17—Des Moines, Iowa
Nov. 18—Fort Wayne, Ind.
Nov. 19—Nashville, Tenn.
Nov. 20—New Orleans, La.

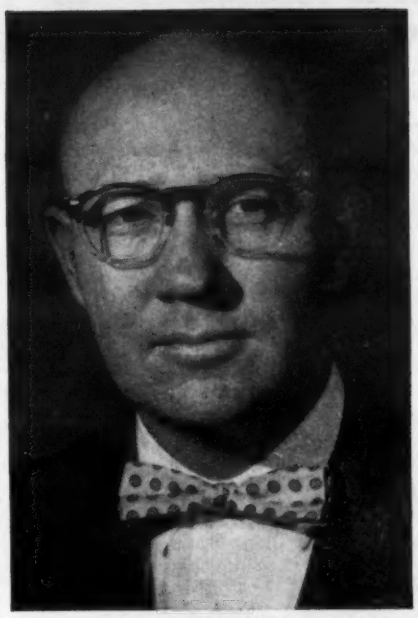
Farmers, ranchers, farm organizations, and lay groups interested in soil and water research are invited by USDA to present their recommendations at the hearings. Formal channels have been established for federal agencies, state agricultural experiment stations, and state extension services to submit their recommendations direct to the working group.

Members of the group are: Dr. G. M. Browning of Iowa State College, Ames, representing the state agricultural experiment stations; Gerald E. Ryerson of the soil conservation service, Washington, D.C.; and Dr. Cecil H. Wadleigh and Dr. Darnell M. Whitt of the agricultural research service, Beltsville, Md.

Organizations and individuals making presentations at the hearings are asked to submit written statements of their evaluation of soil and water conservation research needs no later than the date of the hearing at which they will appear. These evaluations, as well as those of organizations unable to appear at the hearings, should be sent by registered mail to Dr. Darnell M. Whitt, Plant Industry Station, Beltsville, Md., or presented in person at the hearings, USDA said.

NEW FARM STORE

LIVE OAK, CAL.—Valley Farm Supply Store opened here recently. It handles a variety of fertilizer and seed for farm and garden use. Owners are Edward Heilman, Earl Corbin and Dale Kirkpatrick.



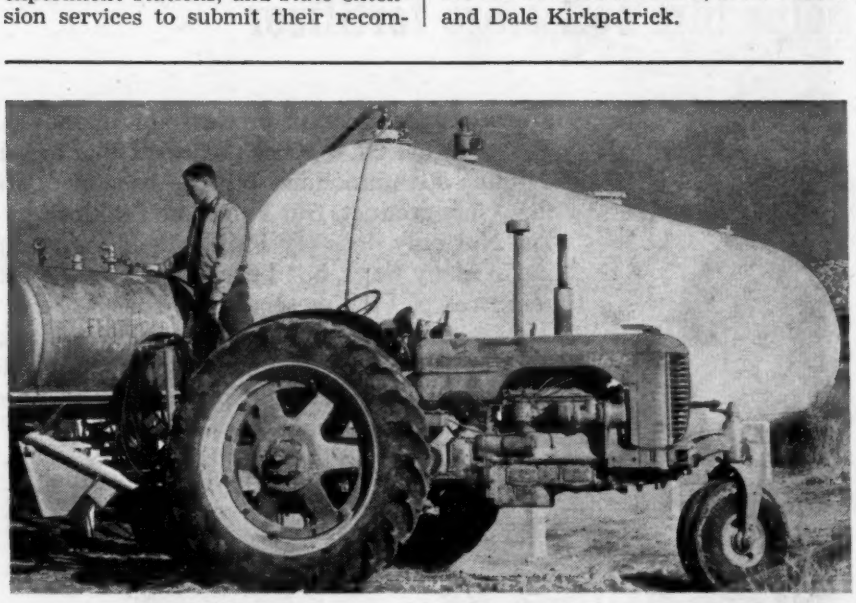
A. I. Raney

C. S. Griffith

ON SAFETY PROGRAM—Two participants in the safety panel to be presented at the annual meeting of the fertilizer section, National Safety Council in Chicago, Oct. 20-21, are A. I. Raney and C. S. Griffith. Mr. Raney has been with Phillips Chemical Co. for over ten years, and Mr. Griffith is a long-time employee of Virginia-Carolina Chemical Co. Both have been prominent in the work of the fertilizer section of NSC and each serves on the executive committee of the section.

Mr. Raney, a safety man for many years, worked in various positions in Phillips plants, and last year was named safety director for the company's entire chemical operations. In addition to his work with the fertilizer group, he is also a member of the board of directors of the Southern Safety Conference.

Mr. Griffith, a native of North Carolina, joined Virginia-Carolina early in his business career, and passed his 41st milestone with the company only this year. He has been superintendent of the firm's Cincinnati plant for a number of years and appeared on the fertilizer section's national program two years ago. The program is open to all fertilizer people interested in safety education and a better safety record in manufacturing plants. Headquarters of the two-day conference are at the LaSalle Hotel, Chicago.



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Gates "50-H" Rubber Lined Tanks will store — with complete safety—all high and low pressure nitrogen solutions, balanced fertilizers and phosphoric acids (including super phosphoric acid).

Thus, these versatile tanks will give you corrosion protection from any fertilizer chemical you may want to store in the forseeable future.

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The Gates plant in Sioux City, Iowa, is staffed by specialists who make rubber lined tanks *exclusively*. For this reason processing can be done with unusual speed... and at surprisingly low cost.

And, because the plant is centrally located in the agricultural area, shipping costs — in most cases — are considerably lower.

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Gates The Mark of Specialized Research

GATES RUBBER LINED TANKS

store all liquid fertilizers safely

TPA 932

Auburn Experiment Station Gets $55,003 Research Grant

AUBURN, ALA.—A three-year research grant totaling $55,003 has been made to support experiments of the zoology-entomology department of the Alabama Polytechnic Institute Agricultural Experiment Station by the U.S. Public Health Service. Receipt of the grant was announced by Dr. Ralph B. Draughon, API president.

The money will be used to continue a project dealing with systemic insecticides for controlling external parasites of animals. Leaders of the project are Dr. B. W. Arthur, assistant entomologist, and Dr. F. S. Arant, department head.

Three primary objectives of the study are given by Dr. Arthur:

1. Compounds will be tested to find those that are toxic to insects and not to animals.
2. The researchers will try to learn why insecticides are toxic to some forms of life and do not harm others. This information can help in getting better and safer compounds.
3. New compounds that are not on the market will be tested to learn their actions, stability, effect on nervous system, forms in which they pass from animals, and how long they remain in animal tissues.

Radio-active materials are being used in this study to speed up many of the tests that must be run on the chemicals.

Dusting Equipment Burns In Texas Hangar Blaze

SAN ANGELO, TEXAS—A hangar containing six crop-duster airplanes and 32 aircraft engines burned in the nearby Wall community. The fire was discovered inside the hangar during the night and a call was sent immediately to the San Angelo and Goodfellow Field Air Force Base Fire Departments. They arrived in time to save only one plane.

The planes belonged to the Southwest Trading Co. Damage has been estimated at $40,000 by W. L. Bales, president of the firm. The planes had been used in spraying cotton fields.

Conference Highlights Soil Test Discussion

ATLANTA, GA. — A panel discussion on the soil testing program of two North Carolina counties will be the highlight of the third Southeastern Fertilizer Conference to be held here Oct. 29-30.

Heading the discussion group will be Dr. J. W. Fitts, head of the department of soils, North Carolina State College.

The county agent's role will be discussed by W. C. Williford, county agent from Raeford, N.C. T. B. Upchurch, also of Raeford, will talk on the role of the Chamber of Commerce.

The banker's role will be covered by Clyde L. Stutts, executive vice president of the Commercial State Bank, Laurel Hill, N.C. Rounding up the discussion will be W. M. Campbell of the Dixie Guano Co. who will discuss the fertilizer dealer's role.

The two-day affair, sponsored by the National Plant Food Institute, will start off with committee meetings on Oct. 29.

Dr. Russell Coleman, executive vice president of NPFI, will open the Oct. 30 activities. Following Dr. Coleman will be Dr. R. L. Beacher, NPFI Southwest regional director, who will discuss soil testing.

F. E. Hartzler, merchandising specialist from Kansas State Teachers College, will round up the day's discussion period with a talk on merchandising.

PLANT PATHOLOGIST NAMED

GAINESVILLE, FLA.—Dr. Robert S. Mullin has been named plant pathologist with the University of Florida Agricultural Extension Service, Marshall O. Watkins, director, announced. In cooperation with county agents, he will assist growers with their plant disease problems. He succeeds Dr. D. M. Coe, who resigned in May. Dr. Mullin was formerly with the Virginia Truck Experiment Station, and has worked also for the U.S. Department of Agriculture.

Bernard M. Machen

Bernard M. Machen Joins Mississippi River Chemical

ST. LOUIS—Bernard M. Machen has joined the sales department of Mississippi River Chemical Co. as assistant sales manager, according to John L. Sanders, sales manager. Mr. Machen will make his headquarters in St. Louis, and will primarily be in charge of national accounts. He will also assist in all sales activities of Mississippi River Chemical Co.

Mr. Machen comes to Mississippi River Chemical Co. with many years of experience in the fertilizer field. Until recently he was employed by Monsanto Chemical Co. and prior to that time was with the Allied Chemical Corp.

Farmers Tour Campus; Discuss Chemical Tests

STATE COLLEGE, N.M. — New Mexico A&M College's 289-acre irrigated experimental farm and orchard were toured by more than 200 farmers this month during the annual Farm Day program. The farmers, riding tractor-drawn trailers between stops, heard researchers of the college's Agricultural Experiment Station explain the experimental work in progress.

Walt Gould, agronomist, told the farmers that present work with a combination spray of dalapon and amizol appears encouraging in the control of nutgrass.

Also, he said, a new chemical known commercially as Eptam appears to be effective in controlling nutgrass by keeping it in a dormant state.

The college is presently testing Eptam to find out how much is required to prevent nutgrass growth, how long the chemical is effective in retarding growth, and to determine what cultural practices promote the most effective control.

Eptam, Mr. Gould pointed out, is not toxic to a number of crops. Indications are that it might be used as a pre-emergence weed control chemical in beans, tomatoes, alfalfa and possibly several other crops.

Named Plant Manager

LEWISTON, IDAHO — Dale Peck has been named manager of the Reubens plant of the Albert Dickinson Co., replacing William Thomason, who resigned. Mr. Thomason and his brother, Robert, have purchased the Shell NH-3 fertilizer equipment from the Albert Dickinson Co. and will continue to operate the business out of Reubens.

PROMOTED BY STAUFFER

NEW YORK — Thomas M. Byrn, formerly assistant manager of Stauffer Chemical Company's plant at Harvey, La., has been promoted to the position of plant manager. Mr. Byrn attended Ohio State University and joined Stauffer in 1951.

California Pathologists Find Disease Cause

BERKELEY, CAL.—Aided by the electron microscope and other tools of advanced research, plant pathologists at the University of California here have identified a soil-borne virus as the cause of a new and so far nameless potato tuber ringspotting problem that appeared last year in the Salinas Valley.

The disease attacked the Kennebec potato variety and reduced chipping quality. Symptoms appear as small necrotic (dead) rings just below the potato skin and brownish internal necrotic flecks.

According to John W. Oswald, professor of plant pathology, and Tully Bowman, graduate research assistant, the new problem may be related to another potato disease called "corky ring spot," suspected to be virus-caused. It may also be similar or identical to "tobacco rattle" and "potato stem mottle," soil-borne virus disease under study in Europe.

Soil-borne viruses could be present in many areas, the scientists believe, but they would not produce disease symptoms in crops until the right combinations of host plants and climatic conditions happen to occur.

When the Berkeley scientists planted healthy potatoes in virus infected soil, the new plants and tubers reproduced the disease symptoms. Nearly half the offspring from diseased tubers also showed the symptoms. Sap from the necrotic rings inoculated into tobacco plants caused leaf mottle, stem killing, and stunting to develop.

Asked how the disease can be controlled, the researchers said, "Probably the best bet in affected areas is to grow crops that aren't susceptible." Soil sterilization might be possible, but isn't yet practical for large-scale field defense against viruses, they continued.

Mr. Oswald and Mr. Bowman are continuing their studies to pinpoint the nature of the virus, its host range, and possible relationships with nematodes.

Adopts New Trademark

BALTIMORE—W. R. Grace & Co., Davison Chemical Div., has adopted "Hi-Flo" as the trademark of the division's line of triple superphosphate products processed at Bartow, Fla. The name was chosen to emphasize one of the qualities of the products.

Offered are "Hi-Flo Gran-U-Lated Triple Superphosphate," for direct application and dry mixing; "Hi-Flo Run-O-Pile Triple Superphosphate" for mixed fertilizers, ammoniators and dry mixers; and "Hi-Flo Blend-Phos Triple Superphosphate" for dry mixing only.

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***die** for*
WARFARIN

The most potent anti-coagulant rodenticide made!

As a result of its extra effectiveness, warfarin will destroy even marginal feeders which consume only very small quantities of bait.

DETHMOR® Warfarin, produced by Penick under strict quality control, is highly effective against all rats and mice. It has good acceptability, will not create tolerance or build bait shyness and is *safe* — approved for use in food establishments.

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FIGURE 1. The precent of harvested acreage fertilized for oats during 1954.

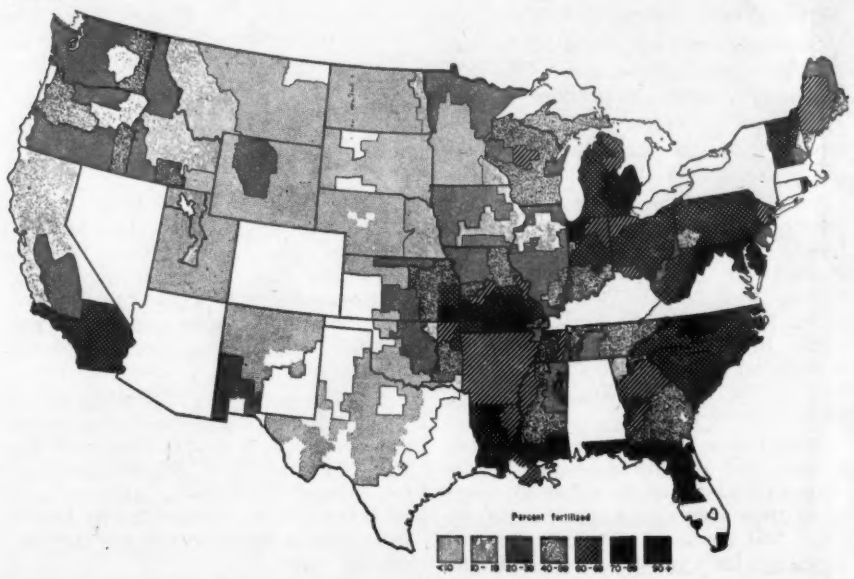


FIGURE 2. The estimated rates of N used per fertilized acre for oats during 1954.

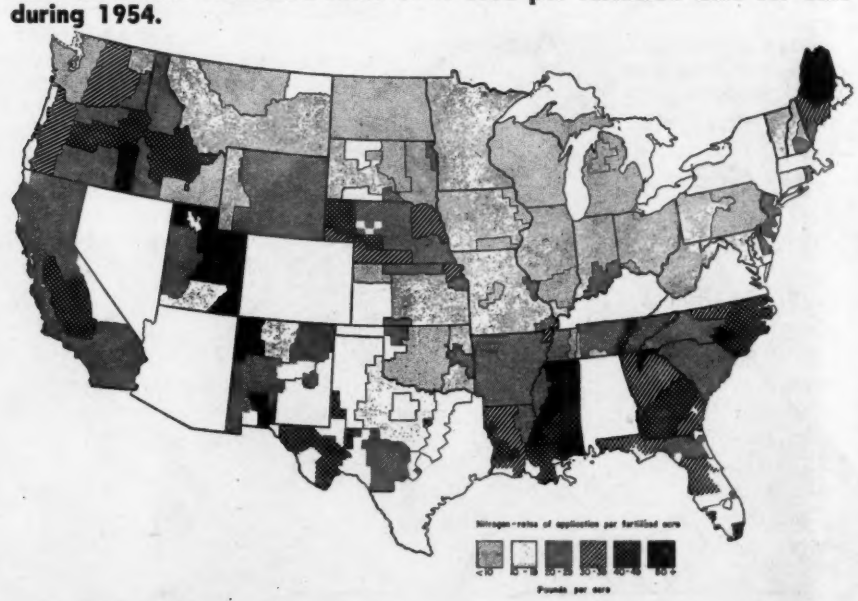


FIGURE 3. The estimated rates of available P_2O_5 used per fertilized acre for oats during 1954.

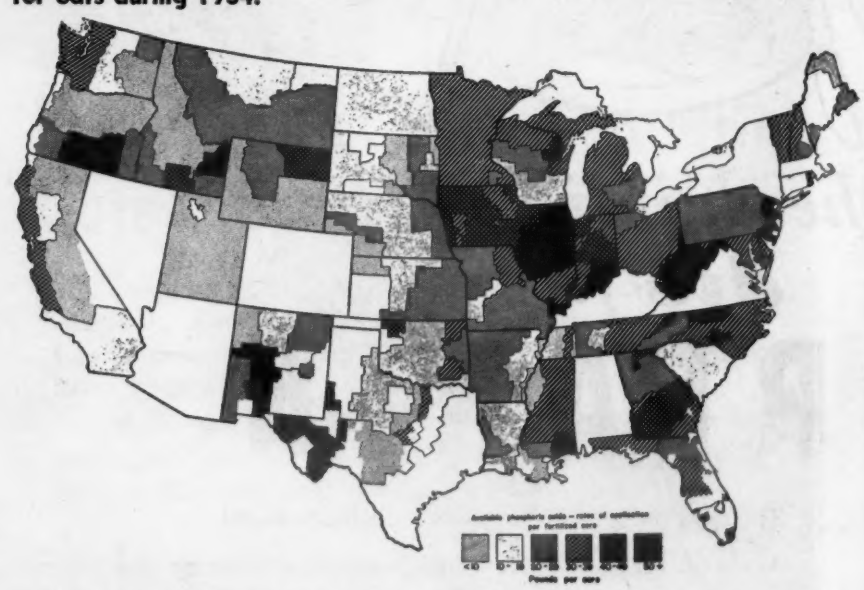
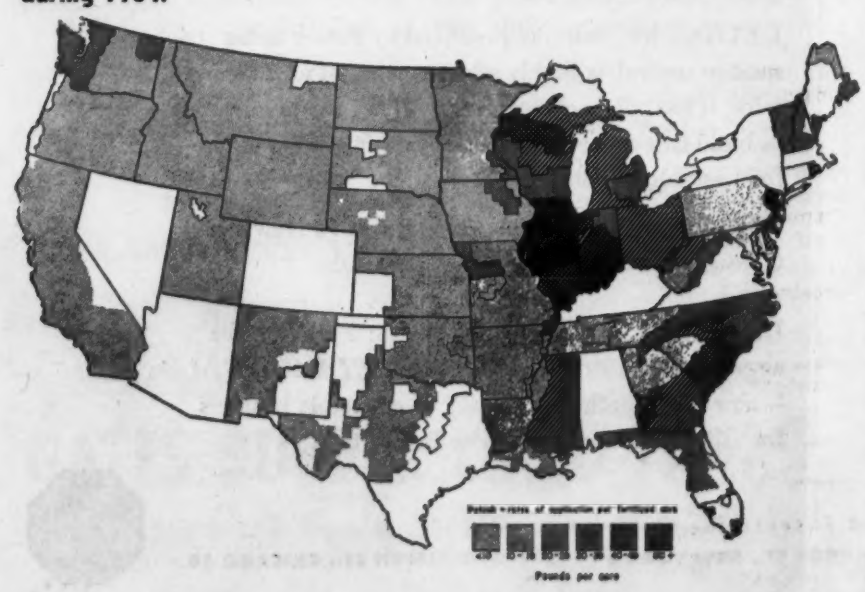


FIGURE 4. The estimated rates of K_2O used per fertilized acre for oats during 1954.



FERTILIZER USE

(Continued from page 1)

tilized, and rates of application of N, available P_2O_5, and K_2O per fertilized acre are shown in Figures 1, 2, 3, and 4, respectively.

The percentage of the harvested oat acreage receiving fertilizer varies considerably amongst states and regions. States in which the percentage is 70 or more comprise Michigan, Indiana, and Ohio, and most of the Northeastern, Appalachian, and Southeastern States. The percentage fertilized is 60 or more in the Mississippi Delta States, 56 in Missouri, 45 in Wisconsin, 25 in Iowa, 23 in Illinois, and 10 in Minnesota.

The oat acreage fertilized in the Plains States ranges from 1 to 6%, except for central and eastern Kansas and Oklahoma, eastern Nebraska, and areas where irrigation is practiced. About 30% of the acreage of irrigated oats in the Plains, Mountain, and Pacific Coast States receive fertilizer.

Patterns of the percentage of the acreage fertilized frequently coincide with broad soil areas as has been observed for a number of the other crops. For oats, such relationships are apparent in Georgia, Mississippi, Louisiana, Tennessee, and most of the North Central States.

Nitrogen rates of 30 lb. or more to the fertilized acre are limited largely to Maine, the Southeastern and Mississippi Delta States, and the irrigated areas of the West. The range in state average rates of N per fertilized acre is only 10 to 19 lb. in the important oat-producing states of Minnesota, Iowa, Missouri, Illinois, Indiana, and Ohio. Such uniformity in rates of N application over a broad area is not observed with other crops. Less than 10 lb. N an acre are applied in Wisconsin, northeastern Iowa, and Michigan, where dairy farming practices return N to the soil.

In the humid region, P_2O_5 applications vary within the relatively narrow range of 25 to 45 lb. to the fertilized acre. Exceptions are Illinois with 58 lb., West Virginia with 57, and South Carolina with 14. Low P_2O_5 rates also are reported for the Mississippi Delta States where a high proportion of the oats are grown on alluvial soils high in available phosphorus. From 20 to 30 lb. of P_2O_5 are applied in the more humid eastern portions of the Plains States with less in the West where the climate becomes more arid. In the western irrigated areas, where phosphorus deficiencies occur, and in the humid belt along the West Coast, P_2O_5 rates again increase.

Potash use on oats is limited largely to the states east of the Mississippi River. The highest average K_2O rates in these states are applied in Wisconsin, Michigan, Illinois, Indiana, Ohio, Rhode Island, New Jersey, and Delaware; and in the Southeast. A P_2O_5:K_2O ratio approaching 1:1 is used in most of these states. Fertilizers used in South Carolina have an average ratio of 1:2 and those used in Pennsylvania, Maryland, West Virginia, and Tennessee have average ratios approaching 2:1. Potash rates are very low throughout the 17 western states except western and northeastern Washington. The tier of states extending from Minnesota through Louisiana represents a transition between the very low rates to the west and the higher rates to the east.

v v

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1955. Census of Agriculture: 1954.

TABLE 1. Oats: Acreage harvested and percent fertilized, and estimated use of fertilizer and primary plant nutrients, by States, 1954.

State	Total acres harvested (3)	Harvested acres fertilized (1)	Fertilizer applied[1]	Rate of application of nutrients per fertilized acre (1)		
				Nitrogen	Available phosphoric oxide	Potash
	1,000 acres	Percent	1,000 tons	Pounds		
Arkansas	347	60	19.0	24	12	9
California	171	26	4.1	28	16	1
Delaware	10	90	1.8	28	39	39
Florida[2]	26	100	5.5	34	34	34
Georgia	511	62	79.6	38	34	31
Idaho	174	23	2.4	19	17	1
Illinois	3,086	23	176.6	13	58	72
Indiana	1,233	72	139.4	13	40	40
Iowa	5,912	25	--	14	45	6
Kansas	1,022	49	29.4	17	24	3
Louisiana	107	69	8.5	31	13	13
Maine	75	35	3.0	58	7	7
Maryland	72	92	10.5	19	38	7
Michigan	1,211	82	111.8	8	29	29
Minnesota	4,926	3/ 10	37.2	11	33	17
Mississippi	328	59	19.1	40	13	10
Missouri	1,306	56	80.9	14	24	16
Montana	252	6	.9	12	23	0
Nebraska	2,203	14	20.6	28	18	1
New Hampshire	1	73	.2	13	27	22
New Jersey	34	53	5.5	21	42	42
New Mexico	10	5	<.1	32	28	0
North Carolina	379	84	--	28	35	30
North Dakota	2,091	4	2.2	2	15	<1
Ohio	1,071	75	117.5	14	31	32
Oklahoma	812	26	12.4	12	22	4
Oregon	241	41	9.0	34	17	0
Pennsylvania	728	78	87.0	9	24	17
Rhode Island	.1	100	<.1	21	41	41
South Carolina	497	76	63.4	29	14	29
South Dakota	3,896	3	6.0	15	22	0
Tennessee	206	47	13.7	24	28	11
Texas	742	1	.4	16	8	1
Utah	29	7	.3	90	0	0
Vermont	14	78	1.8	14	34	28
Washington	180	32	4.3	22	17	11
West Virginia	33	81	5.5	12	57	25
Wisconsin	2,737	45	125.5	3/ 3	23	32
Wyoming	86	14	---	3/ 28	24	<1

[1]Estimates based on data from Soil and Water Conservation Research Division, U.S. Department of Agriculture.

[2]Based on acreage harvested for grain.

[3]Revised.

WEEVIL STUDY

(Continued from page 1)

Dr. Edward F. Knipling, director of entomology research for USDA, represents the department's Agricultural Research Service and is chairman of the group.

The working group will contact directors of state agricultural experiment stations, and state, federal and industry workers in various fields of agricultural science interested in boll-weevil research. Results of the group's study will be used by the department to develop a program for more effective control of this pest.

Losses in the Cotton Belt due to the boll weevil are estimated at more than $300 million a year. Control measures cost producers some $75 million additional each year. The boll weevil has been in this country since 1892, when it crossed the Rio Grande into Texas. By 1920 it had spread across the South to the Atlantic Coast.

Funds totaling $125,000 have been appropriated by Congress in fiscal year 1959 to enable USDA to increase its present boll-weevil research and to review the problem this insect poses for cotton growers.

In announcing the project USDA said:

"Past research on the boll weevil has resulted in improved methods of growing cotton, and new insecticides, which have made efficient cotton production possible in spite of the insect. In recent years, however, cost of controlling this pest has mounted. The boll weevil has developed some resistance to certain insecticides, and more intensive cultivation of cotton in many areas has resulted in a build-up of boll-weevil populations."

AT FORESTRY SCHOOL—Dr. S. P. Gessel, associate professor of forestry, University of Washington, right, demonstrates the use of a wood probe to determine tree ring growth to E. E. Bredeson, Swift & Co. Karl Baur, Pacific Cooperatives, left foreground, looks on. The demonstration took place during the special school on forestry management at Pack Forest, Wash.

FORESTRY MEETING

(Continued from page 1)

nual meetings aimed at acquainting the fertilizer industry with the modern techniques involved in growing trees.

In referring to the history of Pack Forest, Dean Gordon Markworth, University of Washington, said that the site chosen for the meeting was a good one, inasmuch as the land originally was set aside for research and education purposes.

Dr. Stanley Gessel, associate professor of forestry at the University, served as chairman of the school.

Two fields of forestry research which need to be thoroughly investigated are (1) proper use of fertilizer, and (2) forest tree genetics, Ted Yocum, Simpson Timber Co., said.

There are approximately 30 million acres of land devoted to growing Douglas fir trees and related species in the Pacific Northwest, and this acreage has been sustaining a cut of eight to nine billion board feet per year, he said. However, about 70% of this production comes from about 30% of the timbered area. This practice can not continue for long unless we concentrate our efforts on developing methods of research which will lead to increased productivity of the land, Mr. Yocum said.

Mal Alexander, Weyerhaeuser Timber Co. forester, pointed out that his company is attempting to reforest about 11,000 acres annually by using five different methods. Reforestation practices being carried out by Weyerhaeuser include: (1) aerial seeding of current logging operations, (2) scarification of acreage by dozers and aerial seeding, (3) aerial use of weed sprays to kill broadleaf trees and release canopy to aid growth of Douglas fir trees, (4) planting transplant stock immediately following aerial spraying, and (5) transplanting without spraying.

In discussing the fundamental factors of tree growth, Dave Scott, University of Washington, pointed out that most forest lands generally are poor from a soils standpoint, and trees differ from other crops because the period of growth extends over a long period of years.

Cooperation between industry, state and federal agencies will be necessary to provide the answers for present and future problems, Bill Cummings, Weyerhaeuser Timber Co. research forester, noted.

About two thirds of the lumber produced in the United States comes from the Northwest, Mr. Cummings said, and research efforts in this area should be enlarged considerably, if we are to meet our future needs.

Ray Austin, Crown Zellerbach Co., said that forest fertilization experiments conducted by his company show fertilizer increased leader growth on seedlings up to 60%, in addition to giving a much better survival on the stand.

POTASH DELIVERIES

(Continued from page 1)

cipal grade, comprising 93% of the total agricultural potash delivered, while sulphate of potash and sulphate of potash-magnesia together made up 7% of deliveries.

Meanwhile, during the first six months of 1958, deliveries of potash for agricultural purposes in the United States, Canada, Cuba, Puerto Rico, and Hawaii totaled 1,947,456 tons of salts containing an equivalent of 1,141,611 tons K_2O. This was a decrease of nearly 4% in salts and K_2O under the same period in 1957.

Continental United States took 1,083,893 tons K_2O, Canada, 34,658 tons, Cuba, 5,160 tons, Puerto Rico, 11,106 tons, and Hawaii, 6,794 tons K_2O. These figures include imports of 97,310 tons K_2O for the first six months of the year, an increase of more than 18% over last year. Exports to other countries were 111,755 tons K_2O, a decrease of 15%. Deliveries of potash for non-agricultural purposes amounted to 52,553 tons K_2O, a decrease of 16% under last year. Total deliveries for all purposes were 2,220,532 tons of salts containing an equivalent of 1,305,919 tons K_2O, a decrease of about 5% in salts and K_2O.

During the second quarter of 1958, deliveries for agricultural purposes were 561,919 tons K_2O in Continental United States, 18,844 tons in Canada, 2,587 tons in Cuba, 10,806 tons in Puerto Rico, and 3,250 tons in Hawaii making a total of 597,406 tons K_2O, a decrease of 2% under last year. Included in these figures are imports of 97,310 tons K_2O for the first six months of the year.

Exports of potash to other countries during the second quarter were 61,266 tons K_2O, an increase of more than 5% over last year. Deliveries of potash for non-agricultural purposes were 24,723 tons K_2O, a decrease of nearly 24% under last year. Total deliveries for the quarter including imports for the first six months, were 1,160,834 tons of salt containing an equivalent of 683,395 tons K_2O, a decrease of about 2% under last year.

Deliveries of Potash Salts July, 1957 through June, 1958

In Tons of 2,000 lb. K_2O

POINT OF DELIVERY—	Muriate	Manure Salts	Sulphates	Total
Total U.S.	1,709,476.64	—1,264.25	130,078.84	1,838,291.23
(Imports)	(155,211.28)	(.....)	(30,254.14)	(185,465.42)
Canada	77,014.10	.....	9,502.25	86,516.35
(Imports)	(32,367.80)	(.....)	(4,296.00)	(36,663.80)
Cuba	10,670.59	.....	3,693.49	14,364.08
(Imports)	(5,405.00)	.....	(2,150.00)	(7,555.00)
Hawaii	18,606.00	.....	2,150.00	20,756.00
Puerto Rico	16,655.21	.....	2,053.03	18,708.24
(Imports)	(3,725.37)	.....	(1,731.53)	(5,456.90)
Tot. Institute Territories	1,832,422.54	—1,264.25	147,477.61	1,978,635.90
Exports	181,655.73	.....	3,526.07	185,181.80
GRAND TOTAL	2,014,078.27	—1,264.25	151,003.68	2,163,817.70
(Imports)	(196,709.45)	.....	(38,431.67)	(235,141.12)

NOTE: Figures in parentheses represent imports and are included in the totals immediately above them. The negative figure for manure salts is due to transfer from agricultural to non-agricultural of tonnages of manure salts previously reported as agricultural.

INSECT NOTES

(Continued from page 4)

area, that with a mild winter, some weevils may be present to infest the fields next spring. Migration from the south will probably add to this infestation.

Boll worm moths continue to be active in most fields. Egg laying continues in rank fields with all sized larvae being present.

Spider mites are decreasing with more and more predatory insects being found. Some fields completely lost the middle and top crops due to complete defoliation caused by this pest.

Aphids continue to increase in rank fields. Control is needed in many fields to prevent loss in grade due to honeydew secretions in open cotton. —R. P. Mullett.

Grasshoppers Hurting Fall Grains in Eastern Colorado

FT. COLLINS, COLO.—Grasshoppers are causing damage to fall planted small grains in eastern Colorado, reported the Colorado insect detection committee at Colorado State University.

Populations of 15 to 25 second generation hoppers and 10 to 30 adults per square yard have been reported to the committee and entomologists said that 150 tons of rolled grain baits have been used by the farmers to combat the latest damage.

Samples of feed and grain checked by committee entomologists have been found to be infested with the saw-toothed grain beetle. Sanitation in and around storage sites will eliminate these grain scavengers. This finding indicates that farm stored grain should be inspected monthly to avoid infestations of the granary weevil and the lesser grain borer.

Surveys in the Arkansas Valley show that tomato fruitworm egg numbers have increased during the early part of September. Tomato hornworm larvae are serious in some tomato fields in Bent, Crowley, Otero and Pueblo counties. The two-spotted spider mite is causing increased damage to corn. Fall armyworm and corn earworm are damaging 50% of the ears in Prowers, Bent, Otero, Crowley and Pueblo counties.

No change has been reported in the infestation of spotted alfalfa aphid in the Arkansas Valley. However, numbers are being reduced by chemical controls and predators in Mesa, Montrose, Garfield and Delta counties.

DUSTING FIRM FORMED

WOODLAND, CAL.—Ranch-Air Crop Dusters is a new firm organized here recently. Located three miles southeast of Woodland on Road 101, the company is owned by Howard Huttman and William Whitefield.

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The regional circulation of this issue is concentrated in the Western states.

Forest Fertilization Shows Promise for Future

FOREST fertilization offers a promising field for additional plant food sales, as has been known for some time. Evidence of this is not difficult to find. Talks made at the recent forestry management school at Pack Forest, Wash., and at another conference on forest soils held at Michigan State University underline the thinking of people not only in the fertilizer trade, but forest experts as well.

Speakers indicated that the proper use of fertilizers in forest management is one of the most needed types of information and greater production from forest lands is a worthy goal to seek. The application of both fertilizers and weed killers figure in the stepped-up production plans of forestry engineers, it was pointed out at the sessions.

Charles E. Kellogg, Federal Soil Conservation Service, Washington, D.C., in his address before the Michigan group said that further use of fertilizers in forestry is "close at hand," and that foliar methods of application are most likely to be preferred.

A forester speaking at the Washington conference, pointed out that in the Pacific Northwest alone, there are approximately 30 million acres of land devoted to growing Douglas fir trees and related species, and this acreage has been sustaining a cut of from eight to nine billion board feet a year. Yet, about 70% of this production comes from only 30% of the timbered area, he declared, which indicates a great deal remaining to be done in the way of developing greater productivity on the low-output acres.

A University of Washington speaker said that most forest lands are generally poor from a soils standpoint, and that trees differ from other crops because the period of growth extends over a long period of years.

Still, even though the final test of any forestry practice put into effect at the present time will not come for at least two generations and maybe much longer, the idea of widespread fertilization of forest lands is catching on in many quarters. It offers the agricultural chemical industry a promising market.

Seaway May Take Many Valuable Farmland Acres

THE St. Lawrence Seaway, heralded by some as being the most valuable construction job in the world and censured by others as potentially ruinous, will remove from agricultural use many acres of good land, according to some observers. Dr. E. G. Pleva, head of the department of geography, University of Western Ontario, speaking before the Canadian Fertilizer Assn. at Murray Bay, Que., emphasized the need for better use of effective planning legislation in dealing with the expansion problems accompanying the new waterway.

The professor pointed out that a great deal of Canada's best agricultural land in Southern Ontario is "in the shadow of urban expansion." By this token, he continues, "the economics of the Seaway will accelerate urban development, and although increased urban markets will be of aid to Ontario agriculture, much of the finest land in Canada will be, and is being, changed to suburban subdivisions, airports, super highways and industrial sites."

Dr. Pleva said that the Province of Ontario, together with the Great Lakes states of the U.S., must develop increasingly effective means to steer non-agricultural-land uses to the lower grades of land.

"Once good land is withdrawn from agricultural use, it becomes a sterile land use . . . only for standing room," he added.

"Ontario already has effective planning legislation under the Conservation Authorities Act," he said, "so the problem is not to press for more legislation but to use better what we already have," he concluded.

American fertilizer and pesticide firms doing business in areas affected by the Seaway development might do well to study the situation to determine whether the volume of pesticides and plant foods might not be maintained through non-agricultural sales, if indeed the new waterway does remove large areas of farmland.

Harvested Crops Remove Tons of Plant Nutrients

WITH harvest time here the fertilizer trade might well reflect upon the millions of tons of plant food being removed from the land through the crops being taken off and shipped away. It is a point not to be forgotten in reminding farmers that these nutrients must be replenished completely each year if the balance is to be maintained.

A booklet issued recently by the South Carolina Agricultural Experiment Station, Clemson, S.C., has some good words of wisdom regarding the loss of nutrients through harvested crops.

"Many farmers have the mistaken idea that by replacing the amounts of nutrients removed by a crop, they can maintain good soil fertility," the booklet says.

The statement declares further, however, that merely doing this is not adequate. "It is well for a farmer to calculate the approximate amounts of plant nutrients removed by his crops, but it must be remembered that crop removal of plant nutrients accounts for only a relatively small part of soil depletion compared to the removal of nutrients by erosion and leaching. Certain elements, such as phosphorus, are quickly 'fixed' in forms which are only very slowly available to plants, so that much greater amounts of phosphate fertilizers must be applied than are indicated by crop removal figures.

"Care must also be exercised in the application of nitrate nitrogen because, unless the plant is in the stage of growth when it can readily use all of it, much of the nitrogen will be lost by leaching."

Here are some figures on the approximate pounds per acre of nutrients contained in certain crops at harvest time. Although the figures may vary to a certain extent with different soil types, the kind of season, and the fertility condition of the soil, these data show that just to replace the actual amount removed by cropping, it is necessary to apply plant food beyond the amounts usually put on.

Corn at 100 bu. an acre consumes 90 lbs. actual nitrogen, 35 lbs. phosphorus, 25 lbs. potash an acre; alfalfa at the rate of 4 tons an acre, removes from the soil 180 lbs. nitrogen, 40 lbs. phosphorus, and 180 lbs. potash. (In the case of alfalfa, a legume, part of this nitrogen is taken from the atmosphere . . . the same would be true for peanuts, cowpeas, lespedeza and soybeans.)

But for crops such as wheat, barley, cotton, tobacco, oats, as well as fruits and vegetables, every pound of nutrient removed must be put back in quantity to assure continued fertility from the soil.

This should be a potent sales point in fertilizer sales efforts both at this time of the year and also when the spring pressure begins.

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Editor

DONALD NETH
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MEETING MEMOS

Oct. 13-15—Association of Official Agricultural Chemists, Shoreham Hotel, Washington, D.C.

Oct. 19-22—Soil Conservation Society of America, 13th Annual Meeting, City Auditorium, Asheville, N.C.

Oct. 27-30—The American Forestry Assn., 83rd Annual Meeting, Gearhart, Ore.

Nov. 11-13—New York State Insecticide and Fungicide Conference, 20th Annual Meeting; and 11th Annual Pesticide Application Equipment Conference, Bibbins Hall, Cornell University, Ithaca, N.Y.

1959

Jan. 22-24—Agricultural Aircraft Assn., Senator Hotel, Sacramento, Cal.; Wanda Branstetter, Chandler Field, Fresno, Cal., Executive Secretary.

Meeting Memos listed above are being listed in this department this week for the first time.

Sept. 24—New England Fertilizer Conference, Bald Peak Colony Club, Melvin Village, N.H.

Sept. 25—New Jersey Fertilizer Conference, Rutgers University, New Brunswick, N.J.

Sept. 25—Chemical Industry Safety Workshop; Shamrock Hilton Hotel, Houston, Texas.

Sept. 27—Vegetable Crops Field Day, University of California, Davis, Cal.

Oct. 1—Field Day, Eastern Virginia Research Station, Warsaw, Va.

Oct. 2—New Jersey Fertilizer Conference, Rutgers University, New Brunswick, N.J.

Oct. 13 — Agricultural Research Institute Panel on Problems Related to Agriculture in the Fertilizer Producing Industry, Academy of Science Bldg., Washington, D.C.

Oct. 14-15—Western Agricultural Chemicals Assn., Annual Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 16—National Plant Food Institute Conference on Chemical Control Problems; Shoreham Hotel, Washington, D.C.

Oct. 17 — Association of American Fertilizer Control Officials, 12th Annual Meeting, Shoreham Hotel, Washington, D.C., B. D. Cloaninger, Box 392, Clemson, S.C., Secretary-Treasurer.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chemical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-21—Fertilizer Section, National Safety Council, annual fall meeting, La Salle Hotel, Chicago, Ill.

Oct. 21-24—Stored Grain Insect Control Conference, Kansas State College, Manhattan, Kansas.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Oct. 27—Western Range Fertilization Conference, Riverview Country Club, Redding, Cal.

Oct. 28-29—American Society of Range Management Meeting, Riverview Country Club, Redding, Cal.

Oct. 28-29—Northwest Garden Supply Trade Show, Masonic Temple, Portland, Ore.

Oct. 29-30—Annual Southeastern Soil Fertility Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

Oct. 29-31—National Agricultural Chemicals Assn., 25th annual meeting, General Oglethorpe Hotel, Savannah, Ga.

Nov. 5-7—Fertilizer Industry Round Table, Mayflower Hotel, Washington, D.C.

Nov. 9-11—California Fertilizer Assn., 35th Annual Convention, Ambassador Hotel, Los Angeles, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

Nov. 10-11—Agricultural Aviation Research Conference, Milwaukee.

Nov. 18-20—Washington State Weed Conference, Moses Lake, Wash.

Nov. 19-20—Carolinas-Virginia Pesticide Formulators' Assn., Carolina Hotel, Pinehurst, N.C.

Nov. 16-18—National Fertilizer Solutions Assn., Netherland Hilton Hotel, Cincinnati, M. F. Collie, 2217 Tribune Tower, Chicago, Executive Secretary.

Nov. 24-25—Entomological Society of America, Eastern Branch, Annual Meeting, Lord Baltimore Hotel, Baltimore.

Dec. 1-4—Entomological Society of America, Annual Meeting, Hotel Utah, Salt Lake City.

Dec. 3-4—North Central Weed Control Conference, Netherland Hilton Hotel, Cincinnati.

Dec. 3-4—Annual Soil Fertility and Plant Nutrition Short Course, University of Missouri, College of Agriculture, Columbia, Mo.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 8—Annual Soils and Fertilizer Short Course, Coffey Hall, University of Minnesota Institute of Agriculture, St. Paul.

Dec. 8-10—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

Jan. 7-9—Thirteenth Annual Northeastern Weed Control Conference, Hotel New Yorker, New York.

Jan. 20-22, 1959—California Weed Conference, Santa Barbara, Cal.

July 7-9—Pacific Northwest Plant Food Assn., 10th Annual Regional Fertilizer Conference, Tacoma, Wash.

CALENDAR FOR 1958-59

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Fiscal Fertilizer Sales Increase in Minnesota

ST. PAUL, MINN. — Total fertilizer sales in Minnesota for the fiscal year ending July 1, 1958, were 443,389 tons, reports the division of feed and fertilizer control, Minnesota Department of Agriculture. This compares with 414,140 tons for the fiscal year ending July 1, 1957.

Most popular grade was 5-20-20 with 85,691 tons sold. Another popular grade was 6-24-12 with 59,323 tons. Total mixed fertilizer sold was 342,944 tons.

Concentrated superphosphate was the most popular material with 25,691 tons. Anhydrous ammonia sold 19,573 tons. Total of materials sold was 100,445 tons.

LUNCHEON SPEAKER

WASHINGTON — T. A. Wilker, president of the Texas Chemical Council, will be the luncheon speaker during a chemical industry safety workshop set for Sept. 25 at the Shamrock Hilton in Houston. The workshop is being sponsored by the Manufacturing Chemists' Assn. in cooperation with the Texas Chemical Council.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $11 per column inch.

All Want Ads cash with order.

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FERTILIZER SUPERINTENDENT WITH 13 years' experience desires Midwest location, experienced in granulation. Address Ad No. 4080, Croplife, Minneapolis 40, Minn.

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BRUSH AND WEED KILLER

KILL SUBMERSED water weeds which foul up motor propellers, tangle fishing gear and choke irrigation ditches with R-H Granular Weed Rhap. Inexpensive, easy to use, sure results. For details write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

KILL BRUSH at low cost with amazing R-H Brush Rhap. Will not injure grasses, grains, cattle, or other animals. See your dealer, or write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

RESEARCHER APPOINTED

NEW HAVEN, CONN.—Appointment of Dr. Stephen Hitchcock to the research staff of the Connecticut Agricultural Experiment Station has been announced by Neely Turner, vice director of the station. Dr. Hitchcock, a native of Proctor, Vt., received the Ph.D. degree this year from the University of California, where he has also been a research assistant in entomology for the past four years. He is a graduate of Grinnell College and holds a master's degree from the University of California.

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U. S. Industrial Chemicals Co. .....
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U. S. Potash Co. .....
U. S. Rubber Co., Naugatuck Chem. Div...
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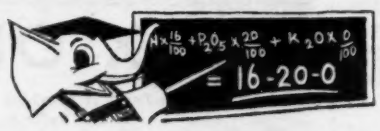
We're putting more and more powerful Elephant Brand advertising into your area. . .

Farmers in your dealer district will be urged to bring their fertilizer problems to you . . .

. . . through hard selling ads in weekly newspapers, farm journals, specialized publications . . .
through eye catching painted bulletins or roadside billboards . . .

through the appeal of the Elephant Brand radio jingle
and the informative 

5-minute "question and answer" radio program five days a week . . . And when the farmers visit you they see your Elephant Brand displays

. . . and you have notebooks, bookmatches, pamphlets and other goodwill builders to give them. You'll find it pays to be known as an Elephant Brand dealer!

Elephant Brand

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27-14-0 6-24-24 8-32-16 10-30-10
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AMMONIUM SULPHATE TRIPLE SUPER PHOSPHATE

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